

EXHIBIT 25

Patent Assertion Entity Activity

AN FTC STUDY

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PATENT ASSERTION ENTITY ACTIVITY: AN FTC STUDY

A REPORT OF THE FEDERAL TRADE COMMISSION

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Executive Summary and Recommendations

Executive Summary

Patent assertion entities (PAEs) are businesses that acquire patents from third parties and seek to generate revenue by asserting them against alleged infringers. PAEs monetize their patents primarily through licensing negotiations with alleged infringers, infringement litigation, or both. In other words, PAEs do not rely on producing, manufacturing, or selling goods. When negotiating, a PAE's objective is to enter into a royalty-bearing or lump-sum license. When litigating, to generate any revenue, a PAE must either settle with the defendant or ultimately prevail in litigation and obtain relief from the court.

In acquiring and then asserting patents, PAEs target individuals and businesses that already use (at least allegedly) the patented technology. PAE activity therefore results in what often are referred to as *ex post* patent transactions because any patent license or settlement occurs after someone has developed or marketed the product at issue. This contrasts with *ex ante* patent transactions in which the technology and related patent rights transfer from an inventor to a manufacturer before the product is developed and marketed.¹ The fact that PAE activity facilitates *ex post*, as opposed to *ex ante*, patent transactions has raised policy questions about the role of PAEs in promoting innovation and economic growth.

To begin answering these questions, researchers at several government agencies and academic institutions have studied PAE business models to evaluate the specific impact on patent litigation.²

¹ See, e.g., FED. TRADE COMM'N, THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION 7–8 (2011), <https://www.ftc.gov/sites/default/files/documents/reports/evolving-ip-marketplace-aligning-patent-notice-and-remedies-competition-report-federal-trade/110307patentreport.pdf> [hereinafter FTC EVOLVING IP MARKETPLACE REPORT].

² See U.S. GOV'T ACCOUNTABILITY OFF., GAO-13-465, INTELLECTUAL PROPERTY: ASSESSING FACTORS THAT AFFECT PATENT INFRINGEMENT LITIGATION COULD HELP IMPROVE PATENT QUALITY (2013), <http://www.gao.gov/products/GAO-13-465> [hereinafter 2013 GAO REPORT]; EXEC. OFFICE OF THE PRESIDENT, PATENT ASSERTION AND U.S. INNOVATION 1–3 (2013), http://www.whitehouse.gov/sites/default/files/docs/patent_report.pdf [hereinafter EOP PATENT ASSERTION AND U.S. INNOVATION REPORT]; EXEC. OFFICE OF THE PRESIDENT, MARCH 2016 ADDENDUM (2016), <https://www.whitehouse.gov/sites/default/files/microsites/ostp/PatentReportAddendumMarch2016.pdf> [hereinafter EOP REPORT ADDENDUM]; CHRYSOULA PENTHEROUDAKIS, JOINT RESEARCH CTR., EUR. COMM'N, JRC96728, INNOVATION IN THE EUROPEAN DIGITAL SINGLE MARKET: THE ROLE OF PATENTS 8, 52–53 (Nikolaus Thumm ed., 2015), <http://publications.jrc.ec.europa.eu/repository/bitstream/JRC96728/jrc96728.pdf>; STEFANO COMINO & FABIO MARIA MANENTI, JOINT RESEARCH CTR., EUR. COMM'N, JRC97451, INTELLECTUAL PROPERTY AND INNOVATION IN INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) 3, 26–27 (Nikolaus Thumm ed., 2015),

These studies have focused on publicly observable litigation behavior and relied on publicly available litigation data. A deeper understanding of PAE business models, however, requires consideration of behavior that is not publicly observable or available, such as how the entities structure and organize themselves, or their confidential acquisition and licensing terms and data.

The Federal Trade Commission has authority under Section 6(b) of the Federal Trade Commission Act³ to collect confidential business information and conduct industry studies. We used our authority to study PAE acquisition, litigation, and licensing practices because more data on and analysis of the non-public aspects of PAE business models can enhance the quality of the policy dialogue. Furthermore, to better understand how PAE business models compare with other business models that utilize patent licensing, we conducted a more specific study of the wireless chipset sector, in which not only PAEs, but other non-practicing entities (NPEs) and wireless chipset manufacturers (Wireless Manufacturers) assert wireless-technology patents.⁴

In the general PAE study, the FTC analyzed information from 22 Responding PAEs and over 2,500 of both their Affiliates and other related entities. As explained below, the FTC observed two distinct PAE business models: Portfolio PAEs and Litigation PAEs. Table A.1 provides an overview of the various categories of PAEs discussed in this Report.

<http://publications.jrc.ec.europa.eu/repository/bitstream/JRC97541/jrc97541.pdf>; Christopher A. Cotropia et al., *Unpacking Patent Assertion Entities (PAEs)*, 99 MINN. L. REV. 649 (2014); Fiona M. Scott Morton & Carl Shapiro, *Strategic Patent Acquisitions*, 79 ANTITRUST L.J. 463 (2014); Robin Feldman et al., *The AIA 500 Expanded: The Effects of Patent Monetization Entities*, 17 UCLA J. L. & TECH. 1, 6 (2013); Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117 (2013); Sara Jeruss et al., *The America Invents Act 500: Effects of Patent Monetization Entities on US Litigation*, 11 DUKE TECH. L. REV. 357 (2012).

³ 15 U.S.C. § 46(b) (2012).

⁴ See Appendix A: Glossary of Frequently Used Terms. Non-practicing entities (NPE) include patent owners that primarily seek to develop and transfer technology. See FTC EVOLVING IP MARKETPLACE REPORT, *supra* note 1, at 8 n.5. The NPEs in this study conducted research and patented technologies related to wireless chipsets.

Table A.1: Categories of PAEs in FTC Study⁵

	Litigation PAEs	Portfolio PAEs	Both Business Models
Responding PAEs	18	4	22
Affiliates	297	30	327
Study PAEs	315	34	349

We examined the practices of each of these respondents across an almost six-year period between January 2009 and mid-September 2014. Of the related entities, 327 engaged in active assertion behavior, namely, sending demands, suing for patent infringement, or licensing patents, during the study period. In the wireless chipset case study, the FTC compared the behavior of PAEs active in the wireless chipset sector with eight manufacturers and five NPEs that asserted patents in this sector. This report describes our major findings from the study and makes recommendations for future reform.

Key Findings

The FTC observed two distinct PAE business models: Portfolio PAEs and Litigation PAEs. From the information and data collected from the PAE respondents, we observed two distinct PAE business models for generating revenue through patent assertion: Portfolio PAEs and Litigation PAEs. Within each business model, Study PAE behavior was relatively homogeneous.

- **Portfolio PAEs:** Portfolio PAEs negotiated licenses covering large portfolios, often containing hundreds or thousands of patents, frequently without first suing the alleged infringer. The value of these licenses was typically in the millions of dollars. Although Portfolio PAEs accounted for only 9% of the reported licenses in the study, they generated 80% of the reported revenue, or approximately \$3.2 billion. Portfolio PAEs typically funded their initial patent acquisitions through capital raised from investors, including institutional investors or manufacturing firms.

⁵ See Appendix A: Glossary of Frequently Used Terms. “Study PAE” means any PAE for which this study presents patent assertion data. The group of “Study PAEs” includes all “Responding PAEs and “Affiliates.” “Responding PAE” means one of the 22 PAEs that received the PAE Special Order and submitted information used in this study. “Affiliates” means entities identified as affiliates by a Responding PAE, including “wholly or partially owned subsidiaries” and “other person(s) over which the firm exercises or has exercised supervision or control,” that sent demands, sued for patent infringement, or licensed patents within the study period. See Appendix C: PAE Special Order, Specification B.2.

The FTC also observed entities that held, but did not assert, patents during the study period. We use the term “Holding Entity” to describe this category. See *infra* Figure 1.1 and accompanying text. There were 2,189 Holding Entities in the study.

- **Litigation PAEs:** Litigation PAEs typically sued potential licensees and settled shortly afterward by entering into license agreements with defendants covering small portfolios, often containing fewer than ten patents.⁶ The licenses typically yielded total royalties of less than \$300,000. According to one estimate, \$300,000 approximates the lower bound of early-stage litigation costs of defending a patent infringement suit.⁷ Given the relatively low dollar amounts of the licenses, the behavior of Litigation PAEs is consistent with nuisance litigation.⁸

For each separate patent portfolio that they acquired, Litigation PAEs characteristically created a new affiliate entity, which often held ten patents or less. They generally operated with little or no working capital and relied on agreements to share future revenue with patent sellers to fund their businesses. Litigation PAEs filed 96% of the cases in the study and accounted for 91% of the reported licenses, but only 20% of the reported revenue, or approximately \$800 million.

- **Portfolio PAE licenses generated total royalties that were much larger, on average, than those of Litigation PAE licenses.** There was little overlap in the royalties generated by Litigation PAE and Portfolio PAE licenses. Seventy-seven percent of Litigation PAE licenses

⁶ Sixty-six percent of Litigation PAE cases settled within 12 months. To provide context, one recent study found that, between 2010 and 2014, the median time to trial for patent lawsuits was 29 months. PRICEWATERHOUSECOOPERS, 2015 PATENT LITIGATION STUDY: A CHANGE IN PATENTEE FORTUNES 14 (2015), <https://www.pwc.com/us/en/forensic-services/publications/assets/2015-pwc-patent-litigation-study.pdf> [hereinafter 2015 PWC PATENT LITIGATION STUDY]. While cases that proceed to trial are far fewer than those that settle, the 29-month value provides a benchmark for the approximate length of time that a case would take if it did not settle. Note that, as used in this report, “Case” means the unit of observation defined as a matter between a particular plaintiff and a particular defendant involving a particular set of asserted patents. See Appendix A: Glossary of Frequently Used Terms.

⁷ The American Intellectual Property Law Association (AIPLA), which periodically surveys the costs of patent litigation, recently reported that the cost of defending an NPE patent litigation through the end of discovery, which litigation budgets typically use as a milestone for filing any summary judgment motions, is between \$300,000 and \$2,500,000, depending on the amount in controversy. AM. INTELLECTUAL PROP. LAW ASS’N, REPORT OF THE ECONOMIC SURVEY 35 (2013) [hereinafter AIPLA 2013 REPORT OF THE ECONOMIC SURVEY]. Although there are more recent AIPLA reports, the FTC uses the 2013 survey here because 2013 is the last full year for which it collected data.

⁸ William H.J. Hubbard, *Sinking Costs to Force or Deter Settlement*, 10 J.L. ECON. & ORG. 1093, 1093–94 (2015) (“The notion is that the prospect of expensive litigation drives the defendant to pay a settlement despite knowing that, were the case to go to trial, the defendant would probably or certainly win.”); David Rosenberg & Steven Shavell, *A Solution to the Problem of Nuisance Suits: The Option to Have the Court Bar Settlement*, 26 INT’L REV. L. & ECON. 42, 42 (2006) (“By a nuisance suit we refer to a legal action in which the plaintiff’s case is sufficiently weak that he would be unwilling to pursue it to trial.”); David Rosenberg & Steven A. Shavell, *A Model in Which Suits Are Brought for Their Nuisance Value*, 5 INT’L REV. L. & ECON. 3, 3 (1985) (“By a suit brought for its nuisance value, we mean a suit in which the plaintiff is able to obtain a positive settlement from the defendant even though the defendant knows the plaintiff’s case is sufficiently weak that he would be unwilling or unlikely actually to pursue his case to trial.”).

generated royalties of less than \$300,000 per license, and 94% generated royalties of less than \$1 million per license. By contrast, 65% of Portfolio PAE licenses generated royalties of greater than \$1 million per license, and 10% generated royalties of greater than \$50 million per license.

The FTC did not observe demand-letter campaigns that, on their own, generated low-revenue licenses. In addition to negotiating licenses and initiating infringement litigation, PAEs may assert their patents by demanding that a target take a license from them. Often these demands take the form of a “demand letter.” The FTC did not observe Study PAEs successfully generating low-revenue licenses by sending demands, but not suing the target. This suggests that demand-letter reform, on its own, would not fully address the potential negative repercussions of PAE activity.

Instead, most licenses in the sample followed a patent infringement suit against the alleged infringer. Consistent with the fact that Litigation PAEs accounted for 91% of reported licenses, patent infringement suits against the eventual licensee preceded 87% of the licenses in the sample. Litigation preceded 93% of Litigation PAE licenses, but just 29% of Portfolio PAE licenses. Because a significant portion of observed PAE activity passed through the courthouse doors, further analyses of publicly available litigation data likely would be beneficial.

Study PAEs focused on acquiring and asserting Information and Communication Technology (ICT) patents. Of all the patents held by PAEs in the FTC’s study, 88% fell under the Computers & Communications or Other Electrical & Electronic technology categories, and more than 75% of the Study PAEs’ overall holdings were software-related patents.⁹

Although Study PAEs overwhelmingly held ICT and software patents, they asserted those patents against firms in a broad range of industries, including “Retail Trade.” More than 17% of demand recipients, 10% of litigation defendants, and 13% of licensees identified in the study operated in the “Retail Trade” industry, which includes both store retailers that operate fixed point-of-sale operations

⁹ The FTC used the methodology developed by Graham and Vishnubhakat for identifying software-related patents. See Stuart Graham & Saurabh Vishnubhakat, *Of Smart Phone Wars and Software Patents*, 27 J. ECON. PERSP. 67 (2013). The FTC used the patent technology categories developed by Bronwyn H. Hall et al. to classify patents into broad technology categories. Bronwyn H. Hall et al., *The NBER Patent Citations Data File: Lessons, Insights and Methodological Tools* 12–13 (Nat’l Bureau of Econ. Research, Working Paper No. 8498, 2001), <http://www.nber.org/papers/w8498>.

and non-store retailers, such as Internet merchants that directly sell products.¹⁰ Given that most of the patents asserted by Study PAEs were ICT patents, the presence of retailers among the targets of assertion activity in the study suggests that Study PAEs asserted their patents not only against manufacturers of the accused products, but also against firms that were end-users of the products. This finding supports anecdotal evidence that end-users are frequently PAE targets.¹¹

Although most Study PAE targets had just one encounter with any Study PAE, a small number of entities were frequent targets of Study PAE activity. Within each category of assertion behavior (demand, litigation, and licensing), most of the observed activity involved a single instance of assertion by any Study PAE against a target. For example, during the study period, 73% of the assertion targets were defendants in only one lawsuit brought by *any* of the 256 Study PAEs that filed infringement suits, and 13% of the assertion targets were defendants in two lawsuits. Nevertheless, a small number of firms reported multiple encounters with Study PAEs. Of the firms that received demands from Study PAEs, 2% received more than five demands, and one firm received 17 demands. Of the firms that reported licenses with Study PAEs, 2% had licenses with more than nine separate Study PAEs.

Study PAEs disproportionately asserted patents against a relatively small number of firms. These firms most frequently operated in the “Computer & Electronic Product Manufacturing” industry. Indeed, firms in the “Computer & Electronic Product Manufacturing” industry accounted for more than half of the top 25 firms that (1) received the largest number of demands from Study PAEs, (2) were sued

¹⁰ The FTC developed a methodology to determine the primary industry in which the demand letter recipients, defendants, and licensees observed in the study operated, relying on that used by the U.S. Census’s North American Industry Classification System (NAICS). *See* Appendix B: Methodology (providing a more detailed discussion of how this classification was made). The NAICS industry classifications appear in quotation marks in the text to distinguish them from the NBER patent technology categories as the names of the industry classifications and the patent technology categories are sometimes similar (e.g., Computers & Communications refers to a patent technology category while “Computer & Electronic Product Manufacturing” refers to a NAICS industry classification).

¹¹ *See, e.g.*, Public Comment from Retail Indus. Leaders Ass’n to the FTC & DOJ Patent Assertion Entity Activities Workshop 4 (Apr. 5, 2013), <https://www.justice.gov/atr/public/workshops/pae/comments/paew-0051.pdf> (PAEs “sue or send demand letters to countless small retailers such as coffee shops, bakeries, and podcasters.”); Public Comment from Food Mktg. Inst. & the Nat’l Rest. Ass’n to the FTC & DOJ Patent Assertion Entity Activities Workshop 6–7 (Apr. 5, 2013), <https://www.justice.gov/atr/public/workshops/pae/comments/paew-0068.pdf> (PAEs are “targeting companies far removed from the traditional patent litigation ecosystem such as retailers, restaurants, and non-technical Internet-based services.”); Public Comment from Barnes & Noble, Inc. to the FTC & DOJ Patent Assertion Entity Activities Workshop 6–7 (Mar. 1, 2013), <https://www.justice.gov/atr/public/workshops/pae/comments/paew-0012.pdf> (“We face repeated allegations that anyone using Wi-Fi, anyone using 3G, anyone using MP3, anyone with an e-commerce website, anyone using Ethernet ... is infringing and must pay a hefty price to license purportedly essential patents.”).

most frequently by Study PAEs, or (3) paid the largest royalties to Study PAEs. In addition, while not necessarily receiving the most demands, the top 25 firms that paid the highest amount of license royalties to Study PAEs accounted for 69% of the royalties observed in the study.

In the wireless chipset sector, Litigation PAEs and Wireless Manufacturers asserted patents differently. In the Wireless Case Study, the FTC examined the patent assertion activities of PAEs, NPEs, and manufacturers in the wireless chipset sector to understand better how different business models might affect assertion behavior in the same technological space. We observed that Wireless Manufacturers sent demand letters before executing licenses, while Litigation PAEs sued before licensing their patents. Wireless Manufacturers and NPEs also sent nearly three times as many demand letters as all of the Study PAEs combined. Litigation PAEs brought nearly two-and-a-half times as many patent infringement cases involving wireless patents as Wireless Manufacturers (which collectively accounted for approximately 90% of worldwide chipset sales), NPEs, and Portfolio PAEs combined.

Wireless Manufacturer and Litigation PAE license characteristics also differed markedly. Wireless Manufacturer licenses frequently included field-of-use restrictions, cross-licenses, and complicated payment terms, whereas Litigation PAE licenses involved simple lump-sum payments with few restrictions, if any. Portfolio PAE and NPE license characteristics fell between these two extremes.

A number of scholars have expressed concerns that, because PAEs likely face lower costs and fewer risks of asserting their patents than other patent holders, such as manufacturers, PAEs more aggressively assert their patents.¹² In particular, these scholars are concerned that lower litigation costs may allow PAEs to obtain higher royalties than a manufacturer or NPE would receive.¹³ In the Wireless Case Study, the FTC found that Study PAEs were more likely to assert their patents through litigation than were Wireless Manufacturers. For example, 30% of Portfolio PAE wireless patent licenses and nearly 90% of Litigation PAE wireless patent licenses resulted from litigation, while only 1% of Wireless

¹² Scott Morton & Shapiro, *supra* note 2; Lemley & Melamed, *supra* note 2. Unlike manufacturers, PAEs do not face countersuit by defendants against their own products and do not risk reputational harm from litigation. Moreover, manufacturers likely have much higher discovery costs as they have many employees actively engaged in the implementation of the technologies where infringement claims are made. By contrast, PAEs typically have very few employees and none are involved in implementing the patents they hold.

¹³ Scott Morton & Shapiro, *supra* note 2; Lemley & Melamed, *supra* note 2.

Manufacturer wireless patent licenses resulted from litigation. The FTC, however, has not attempted to determine if the royalties received by Study PAEs were higher or lower than those that the original assignees of the licensed patents could have earned. The FTC did not have the data to estimate reliably the royalties the original assignee would have received for the patents ultimately licensed by a Study PAE.

Study PAEs had diverse and heterogeneous data-keeping practices. As a result, the FTC does not report how much revenue PAEs shared with others, including independent inventors, or the costs of assertion activity. The FTC sought to evaluate the role of PAE activity in promoting patent monetization for inventors and innovation as part of its study. Towards that end, the FTC requested that Responding PAEs provide detailed data describing how they shared licensing revenue with outside parties and their costs of patent assertion. Responding PAEs used different methods to maintain information describing their revenue sharing and costs, however, which prevented any meaningful comparison of the degree of revenue sharing by PAEs or their assertion costs.

For example, some Responding PAEs viewed payments to outside counsel as a cost of patent assertion, but others viewed such payments as revenue sharing (counsel often received a fixed proportion of licensing royalties). Moreover, the majority of Responding PAEs did not maintain information on assertion costs, and only a few Responding PAEs provided such data at either the Affiliate level or assertion campaign level.¹⁴ For these reasons, we did not analyze either the proportion of licensing revenue that they shared with outside parties, or the costs of patent assertion. Due to this limited data, this report does not address the efficiency of PAE business models.

Recommendations for Legislative and Judicial Reform

As observed in the study, infringement lawsuits filed against targets played a key role in the viability and success of the Litigation PAE business model. Ninety-three percent of reported Litigation PAE licenses followed a lawsuit against the eventual licensee and 77% were valued at less than the estimated cost of defending a patent lawsuit through the end of discovery—a threshold below which litigation settlements might be considered nuisance value. In addition, when licenses followed litigation, those

¹⁴ For example, litigation expenses were sometimes tracked at the level of all litigation corresponding to a given set of patents (aggregated across defendants) rather than at the level of a specific defendant.

litigations tended to settle early; of the cases that settled, 34% did so within six months of filing, 66% within one year, and 83% within 18 months. Although Litigation PAEs generated a minority of the reported PAE licensing revenues in the study, they accounted for the vast majority of total lawsuits filed.

The FTC recognizes that infringement litigation plays an important role in protecting patent rights, and that a robust judicial system promotes respect for the patent laws. Nuisance infringement litigation, however, can tax judicial resources and divert attention away from productive business behavior. With this balance in mind, the FTC proposes reforms to: 1) address discovery burden and cost asymmetries in PAE litigation; 2) provide the courts and defendants with more information about the plaintiffs that have filed infringement lawsuits; 3) streamline multiple cases brought against defendants on the same theories of infringement; and 4) provide sufficient notice of these infringement theories as courts continue to develop heightened pleading requirements for patent cases.

Develop rules and case management practices to address discovery burden and cost asymmetries in PAE litigation. In civil lawsuits, plaintiffs and defendants exchange information relevant to the litigation through disclosures and responses to discovery requests. The Federal Judicial Center notes that discovery in patent litigation “can be exhaustive and exhausting for a variety of reasons,” including broad claims and defenses which require inquiry into product development and financial records, special issues that arise with willfulness and inequitable conduct claims, and “potentially consequential but unpredictable outcome[s]” that can lead to extensive discovery requests and lack of compromise.¹⁵

Because PAEs do not invent, develop, or manufacture products incorporating their patented technology, they generally have less discoverable information than the party accused of infringement.¹⁶ They also are not subject to countersuit for patent infringement, and therefore do not face potential discovery

¹⁵ PETER S. MENELL ET AL., FED. JUDICIAL CTR., PATENT CASE MANAGEMENT JUDICIAL GUIDE 4-1 (3d ed. 2016), [http://www.fjc.gov/public/pdf.nsf/lookup/Patent-Case-Management-Judicial-Guide-3d-ed-2016.pdf/\\$file/Patent-Case-Management-Judicial-Guide-3d-ed-2016.pdf](http://www.fjc.gov/public/pdf.nsf/lookup/Patent-Case-Management-Judicial-Guide-3d-ed-2016.pdf/$file/Patent-Case-Management-Judicial-Guide-3d-ed-2016.pdf).

¹⁶ Any firm that uses a litigation strategy to generate license revenues, however, may have more documents that are subject to a preservation duty. *See, e.g., Eon-Net LP v. Flagstar Bancorp*, 653 F.3d 1314, 1324–25 (Fed. Cir. 2011) (affirming the district court’s finding that Eon-Net and its principal failed to observe their duty to preserve evidence during the ongoing lawsuits); *Micron Tech., Inc. v. Rambus Inc.*, 645 F.3d 1311, 1325 (Fed. Cir. 2011) (affirming the district court’s finding that litigation became reasonably foreseeable, and a preservation duty therefore arose, when Rambus’s vice-president of intellectual property “articulated a time-frame and a motive for implementation of the Rambus litigation strategy”).

relating to infringement counterclaims. A PAE may thus be able to subject a defendant to exhaustive discovery requests while itself facing a relatively light discovery burden. This asymmetry in discovery burden can give PAEs an advantage in litigation.¹⁷

As discussed above, Litigation PAEs settled 66% of their cases within 12 months,¹⁸ and settlements frequently involved lump-sum license payments valued at less than \$300,000. The American Intellectual Property Law Association (AIPLA), which periodically surveys the costs of patent litigation, recently reported that defending an NPE patent lawsuit through the end of discovery costs between \$300,000 and \$2.5 million, depending on the amount in controversy.¹⁹ By this estimate, 77% of Litigation PAEs' settlements fell below a *de facto* benchmark for the nuisance cost of litigation. This suggests that discovery costs, and not the technological value of the patent, may set the benchmark for settlement value in Litigation PAE cases.

Because defendants frequently paid less than the estimated value of discovery costs to settle litigation with Study PAEs, and because there is asymmetry in discovery burden between PAE plaintiffs and defendants, Congress, the Judicial Conference of the United States, and individual courts should promote case management practices that take these costs and asymmetries into account. One step toward achieving this goal would be to amend Federal Rule of Civil Procedure 26, which addresses discovery in civil actions, in a way that helps balance these relative burdens. Rule 26 requires parties to meet and confer to discuss, among other things, a plan for discovery.²⁰ Early disclosure of asserted claims and infringement and invalidity contentions in PAE litigation would help to balance the asymmetries of plaintiff and defendant-side discovery costs.²¹ Likewise, measures that would limit discovery before preliminary motions together with provisions to ensure that such motions are decided

¹⁷ MENELL ET AL., *supra* note 15, at 4-18 (“This is especially salient in cases where patent holding companies that make no products (‘nonpracticing entities’) bring suit against companies making an allegedly infringing product. In these cases, the heavy burden of discovery is borne almost exclusively by the defendant, and this asymmetry allows the plaintiff to use discovery as a tool to coerce a favorable settlement.”). *See also* 2013 GAO REPORT, *supra* note 2, at 3.

¹⁸ For comparison, one analyst found that between 2010 and 2014, the median time to trial for patent cases was 29 months. 2015 PWC PATENT LITIGATION STUDY, *supra* note 6, at 14.

¹⁹ AIPLA 2013 REPORT OF THE ECONOMIC SURVEY, *supra* note 7, at 35.

²⁰ FED. R. CIV. P. 26(f).

²¹ *See, e.g.*, N.D. CAL. PATENT L.R. 3-1 & 3-3; E.D. TEX. PATENT R. 3-1 & 3-3; N.D. ILL. L. PATENT R. 2.2 & 2.3.

in a timely manner would help alleviate the asymmetry problem.²² Furthermore, early disclosure of damages theories would flag potential legal issues for summary judgment motions and provide more information for settlement discussions. In general, any measures that reduce discovery burden and costs while ensuring discovery of information appropriate to the case should be considered.

Amend Federal Rule of Civil Procedure 7.1 to reach a broader range of non-party interested entities or persons.²³

Federal Rule of Civil Procedure 7.1 requires all nongovernmental corporate parties to identify “any parent corporation and any publicly held corporation owning 10% or more of its stock” in its “first appearance, pleading, petition, motion, response, or other request addressed to the court.”²⁴ The purpose of the rule is to “reach a majority of the circumstances that are likely to call for [judicial] disqualification on the basis of financial information that a judge may not know or recollect.”²⁵ The FTC observed significant variation in how multi-affiliate Litigation PAEs organized their affiliate companies, many of which existing Rule 7.1 would not cover. To provide defendants and the judiciary with a better understanding of financial relationships relating to firms that may appear in the courtroom, Congress and the Judicial Conference should expand the reportable relationships under Rule 7.1.²⁶

²² 28 U.S.C. § 1404(a) (2012) (“For the convenience of parties and witnesses, in the interest of justice, a district court may transfer any civil action to any other district or division where it might have been brought or to any district or division to which all parties have consented.”).

²³ This recommendation is consistent with the Administration’s recommendation that Congress “require patentees and applicants to disclose the ‘Real Party-in-Interest,’ by requiring that any party sending demand letters, filing an infringement suit or seeking USPTO review of a patent to file updated ownership information, and enabling the USPTO or district courts to impose sanctions for non-compliance.” Press Release, The White House, Fact Sheet: White House Task Force on High-Tech Patent (June 4, 2013), <https://www.whitehouse.gov/the-press-office/2013/06/04/fact-sheet-white-house-task-force-high-tech-patent-issues>. See also Public Comment from U.S. Dep’t of Justice & Fed. Trade Comm’n to the U.S. Patent & Trademark Office Notice of Roundtable on Proposed Requirements for Recordation of Real-Party-in-Interest Information Throughout Application Pendency and Patent Term (Feb. 1, 2013), <https://www.ftc.gov/policy/policy-actions/advocacy-filings/2013/02/proposed-requirements-recordation-real-party-interest> [hereinafter Public Comment from U.S. Dep’t of Justice & Fed. Trade Comm’n to the U.S. Patent & Trademark Office].

²⁴ FED. R. CIV. P. 7.1.

²⁵ FED. R. CIV. P. 7.1 Committee Notes on Rules (2002).

²⁶ For example, the Civil Local Rules of the Northern District of California require any party that makes a first appearance in any proceeding of the Court to disclose, “any persons, associations of persons, firms, partnerships, corporations (including parent corporations), or other entities other than the parties themselves known by the party to have either: (i) a financial interest (of any kind) in the subject matter in controversy or in a party to the proceeding; or (ii) any other kind of interest that could be substantially affected by the outcome of the proceeding.” N.D. CAL. CIV. L.R. 3-15(b)(1); see also *id.* 3-15(b)(2) (“For purposes of this Rule, the terms ‘proceeding’ and ‘financial interest’ shall have the meaning assigned by 28 U.S.C. § 455 (d)(1), (3) and (4), respectively.”).

Establish procedures encouraging courts to stay a PAE’s infringement action against a customer or end-user, where the PAE has also sued the manufacturer of the accused product under the same theory of infringement. The FTC observed that a significant proportion of PAE targets in the study did not appear to manufacture the allegedly infringing product. For example, Litigation PAEs filed over 15% of their cases against defendants in the “Retail Trade” industry. The Patent Act allows a patent holder to recover from anyone who “uses” the patented invention. Nevertheless, simultaneous litigation by a PAE against a manufacturer and its customers on the same theory of infringement can impose unnecessary judicial and private costs. Should the patent be invalidated in one case, for example, it would make further litigation in the other cases unnecessary. The manufacturer of an accused product typically has a much better understanding of the disputed technology and thus typically is in a better position to defend against the infringement suit than is a customer or retailer. And it is also more likely to have discoverable evidence because it produces the accused product.

Accordingly, to address situations where a PAE sues a manufacturer and its customers on the same theory of infringement, Congress and the Judicial Conference should enact provisions that encourage a district court to stay actions against end-users until the manufacturer suit has been resolved.²⁷

As courts continue to address the “plausibility” of pleadings in patent cases, ensure that patent infringement complaints provide sufficient notice to accused infringers. Until the end of 2015, a patent holder could file a complaint in district court by making simple allegations regarding its patent ownership and the defendant’s infringement. The patent holder did not need to identify any claims that were allegedly infringed, or list any accused products.²⁸ This standard, based on a federal form for pleading patent infringement, applied to all of the infringement claims made by Study PAEs during the FTC’s study period.

²⁷ See, e.g., Innovation Act, H.R. 9, 114th Cong. § 5 (2015) (as reported by H. Comm. on the Judiciary, July 29, 2015) (including provisions that enable customer or end-user defendants to stay infringement litigation so as to allow the manufacturer or supplier of the accused product or technology to intervene in the litigation); PATENT Act, S. 1137, 114th Cong. § 4 (2015) (as reported by S. Comm. on the Judiciary, Sept. 8, 2015) (including similar provisions addressing customer and end-user litigation stays).

²⁸ FED. R. CIV. P. 84, Form 18.

In December 2015, however, an amendment to the Federal Rules of Civil Procedure abrogated the use of this form for patent cases.²⁹ Patent holders, following the pleading standard articulated by the Supreme Court for civil cases generally, now must plead factual allegations that make infringement “plausible.”³⁰ Because Litigation PAEs generate licensing revenue primarily through litigation, requiring more particularity in a complaint can provide defendants with more information with which to evaluate the nature and scope of their accused infringement. As the courts continue to develop the plausibility standard in patent cases, they should continue to consider the benefits of pleadings that provide sufficient notice to accused infringers.

Conclusion

The FTC took its first in-depth look at PAE activity in the hearings leading up to its 2011 report examining technology markets and patent markets: *The Evolving IP Marketplace: Aligning Patent Notice and Remedies with Competition*.³¹ As the Commission recognized then, consistent with our earlier examinations of patent policy, the patent system makes important contributions to innovation, consumer welfare, and U.S. prosperity, in part because of the patent holder’s right to exclude.³²

²⁹ 28 U.S.C. § 2074 (2012); Letter of Transmittal to Congress (Apr. 29, 2015), <http://www.uscourts.gov/rules-policies/pending-rules-amendments>.

³⁰ *Ashcroft v. Iqbal*, 556 U.S. 662 (2009); *Bell Atlantic Corp. v. Twombly*, 550 U.S. 544 (2007). *See, e.g., e.Digital Corp. v. iBaby Labs, Inc.*, No. 15-cv-05790-JST, 2016 U.S. Dist. LEXIS 111689, at *5–9 (N.D. Cal. Aug. 22, 2016) (reviewing district court decisions since the abrogation of Form 18); *Atlas IP LLC v. Pac. Gas & Elec. Co.*, No. 15-cv-05469-EDL, 2016 U.S. Dist. LEXIS 60211, at *15–17 (N.D. Cal. Mar. 9, 2016) (granting motion to dismiss with leave to amend, noting that “the disclosures required by the Patent Local Rules will soon provide more detailed notice”); *Ruby Sands LLC v. Am. Nat’l Bank of Tex.*, No. 15-cv-01955-JRG, 2016 U.S. Dist. LEXIS 83897, at *15 (E.D. Tex. June 28, 2016) (granting motion to dismiss with prejudice, noting “a highly unusual case ... with a serial litigant” who failed to plead plausible claims of direct infringement).

³¹ *See, e.g.* FTC EVOLVING IP MARKETPLACE REPORT, *supra* note 1, at 8.

³² FTC EVOLVING IP MARKETPLACE REPORT, *supra* note 1, at 1; U.S. DEPT. OF JUSTICE & FED. TRADE COMM’N, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION 1 (2007), <https://www.ftc.gov/sites/default/files/documents/reports/antitrust-enforcement-and-intellectual-property-rights-promoting-innovation-and-competition-report.s.department-justice-and-federal-trade-commission/p040101promotinginnovationandcompetitionrpt0704.pdf> [hereinafter FTC/DOJ PROMOTING INNOVATION AND COMPETITION REPORT]; FED. TRADE COMM’N, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY 1–2 (2003) <https://www.ftc.gov/sites/default/files/documents/reports/promote-innovation-proper-balance-competition-and-patent-law-and-policy/innovationrpt.pdf> [hereinafter FTC PROMOTE INNOVATION REPORT]. *See also* 35 U.S.C. § 154(a)(1) (2012); *see also* FTC EVOLVING IP MARKETPLACE REPORT, at 1 (noting that the patent system promotes innovation, in the face of business risk, “by giving patent owners the right to exclude others from making, using or

Further investigation of the PAE business model, including a workshop in 2012,³³ led the Commission to initiate this study—the first use of its Section 6(b) authority to investigate transactions in the intellectual property marketplace. The research presented in this report uses both public and non-public information to shed new light on PAE business models, including detailed data describing PAE assertion behavior and patent holdings.³⁴

Based on the overall findings of this study and consistent with the FTC’s history of recommending improvements to patent law to facilitate the benefits of patent rights, while minimizing practices that can “discourag[e] follow-on innovation, prevent[] competition, and rais[e] prices through unnecessary litigation and licensing,”³⁵ the FTC recommends that policymakers address PAE litigation asymmetries through procedural and substantive reform.

selling a patented invention for 20 years. By preventing copying that might otherwise drive down prices, the patent system allows innovators to recoup their investment in research and development.”)

³³ In December 2012, the FTC and the Antitrust Division of the United States Department of Justice held a joint workshop to explore the claimed harms and efficiencies of PAE activity. *Patent Assertion Entity Activities Workshop*, FED. TRADE COMM’N, <https://www.ftc.gov/news-events/events-calendar/2012/12/patent-assertion-entity-activities-workshop>.

³⁴ The FTC estimates that the litigation reported in this study represents at least 8.8% of all patent suits filed in the U.S. during the study period. *Infra* notes 182–184, and accompanying text.

³⁵ FTC EVOLVING IP MARKETPLACE REPORT, *supra* note 1 (referring to invalid or overbroad patents and explaining that, as a result “many of the recommendations in the [FTC PROMOTE INNOVATION REPORT] focused on improving patent quality as a means of balancing exclusivity and competition.”).

Chapter 1: Introduction and Background

Definition of a Patent Assertion Entity

The term “patent assertion entity,” or PAE, as used by the Commission in this report and elsewhere,³⁶ refers to a firm that primarily acquires patents and seeks to generate revenue by asserting them against accused infringers. As the term underscores, PAE business models focus on asserting patents that the firm has acquired from third parties, rather than obtained from the U.S. Patent and Trademark Office (USPTO) through prosecution. Patents are a PAE’s principal asset; a PAE does not manufacture, distribute, or sell products.

Merely holding a patent, however, does not generate revenue for a PAE. Instead, the firm generates revenue by licensing that patent or, more rarely, by obtaining court-ordered damages in successful patent infringement litigation. Furthermore, a PAE generally initiates negotiations that may lead to a license by communicating a demand for payment to, or filing an infringement suit against, an accused infringer.³⁷

The Commission first commented on PAEs in its 2003 report entitled *To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy*. That report followed hearings conducted by the FTC and the U.S. Department of Justice (DOJ) in 2002 regarding the intersection of competition and patent law and policy.³⁸ At those hearings, some panelists observed the rise of “non-practicing entities,” or NPEs—firms that, for various reasons, do not make or sell products and therefore are not vulnerable to a countersuit for patent infringement when they sue on their own patents.³⁹ Panelists identified, as one type of NPE, “patent assertion firms” that buy patents from other companies and then

³⁶ See also FTC EVOLVING IP MARKETPLACE REPORT, *supra* note 1, at 50 n.2, 60–61.

³⁷ Additionally, some PAEs also generate revenue by selling their patents, although such transfers are typically ancillary to their licensing activity.

³⁸ FTC PROMOTE INNOVATION REPORT, *supra* note 32.

³⁹ *Id.*, ch. 2, at 31 & ch. 3, at 38.

assert them against companies that make and sell products, such as firms in the computer hardware industry.⁴⁰

In a subsequent 2011 report entitled *The Evolving IP Marketplace: Aligning Patent Notice and Remedies with Competition*, the Commission used the term “patent assertion entity,” or PAE, to distinguish patent assertion firms from other types of NPEs, which include firms that primarily seek to develop and transfer patented technology, even if they do not practice the patents themselves.⁴¹ Examples of these latter types of NPEs include universities and semiconductor design houses.⁴² In contrast to such NPEs, “[f]or the most part, PAEs purchase patents, and then sell or license them as assets whose values are based on the amount of licensing fees that can be extracted from operating companies already using and marketing the technology, or they facilitate others who make the assertions.”⁴³

The Commission’s definition of a PAE is integral to understanding the findings and conclusions described in this report, and placing them in the context of prior studies, because other researchers have tended to examine the impact of NPEs generally. For example, in one study, Sara Jeruss et al. focused on “patent monetization entities,” which they define as “those entities whose primary focus is deriving income from licensing and litigation, as opposed to making products.”⁴⁴ The authors tracked universities in their study separately, however, reasoning that although universities do not make products, “their core activity involves education and academic research, rather than monetization of rights.”⁴⁵ In another study, John R. Allison et al. sorted patent infringement plaintiffs into 12 different “entity classes,” including an entity class called “acquired patents.”⁴⁶ Eleven of the 12 entity classes

⁴⁰ *Id.*, ch.2, at 31 & ch. 3, at 39.

⁴¹ FTC EVOLVING IP MARKETPLACE REPORT, *supra* note 1, at 8 n.5, 50 n.2, 60.

⁴² *Id.*

⁴³ *Id.* at 60; see also Colleen V. Chien, *From Arms Race to Marketplace: The New Complex Patent Ecosystem and Its Implications for the Patent System*, 62 HASTINGS L.J. 297, 328 (2010) (defining patent assertion entities as entities that “are focused on the enforcement, rather than the active development or commercialization of their patents”).

⁴⁴ Jeruss et al., *supra* note 2, at 361.

⁴⁵ *Id.* at 369.

⁴⁶ John R. Allison et al., *Extreme Value or Trolls on Top? The Characteristics of the Most-Litigated Patents*, 158 U. PA. L. REV. 1, 10 (2009).

corresponded to various types of NPEs, and “[r]ather than take a position on what, if any, nonpracticing entities should be considered ‘trolls,’ [the authors] classify each patent owner and let the reader decide.”⁴⁷

In the Commission’s view, a label like “patent troll” is unhelpful because it invites pre-judgment about the societal impact of patent assertion activity without an understanding of the underlying business model that fuels such activity. For example, in *Halo Electronics, Inc. v. Pulse Electronics, Inc.*, the Supreme Court observed that “[t]rolls, in the patois of the patent community, are entities that hold patents for the primary purpose of enforcing them against alleged infringers, often exacting outsized licensing fees on threat of litigation.”⁴⁸ This definition incorporates a normative judgment that licensing fees are “outsized,” which cannot be made without some understanding of the business model and its economics. The Commission’s study and this report seek to bridge that knowledge gap.

Legal Framework for PAE Activity

In a sense, a PAE reflects the legal environment created by the U.S. patent system.⁴⁹ Indeed, four provisions of the federal Patent Act, Title 35, United States Code, undergird PAE business models. First, Section 261 declares that patents “shall have the attributes of personal property,” meaning that they can be owned by one or more persons and transferred to others.⁵⁰ A PAE can acquire a patent from another firm or individual because patent law allows it to do so. Second, Section 154 establishes a patent holder’s core right to exclude others from making, using, offering for sale, or selling the patented invention in the United States.⁵¹ When a PAE acquires a patent, what it seeks to leverage is this statutory right to exclude. It exercises this right when it asserts a patent against another firm and demands

⁴⁷ *Id.* at 11. The sole (non-NPE) entity class was “product companies.”

⁴⁸ *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 136 S. Ct. 1923, 1935 (2016).

⁴⁹ Our discussion focuses on the U.S. patent system but we do not mean to suggest that PAEs or, more broadly, NPEs are unique to the U.S. *See, e.g.*, COMINO & MANENTI, *supra* note 2, at 3; PENTHEROUDAKIS, *supra* note 2, at 8.

⁵⁰ 35 U.S.C. § 261 ¶ 1 (2012) (“Subject to the provisions of this title, patents shall have the attributes of personal property.”); *id.*, ¶ 2 (“Applications for patent, patents, or any interest therein, shall be assignable in law by an instrument in writing.”).

⁵¹ 35 U.S.C. § 154(a)(1) (2012) (“Every patent shall contain ... a grant to the patentee, his heirs or assigns, of the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States, ... referring to the specification for the particulars thereof.”).

payment in exchange for a license.⁵² Third, Section 271 defines patent infringement as any act of making, using, offering for sale, or selling the patented invention without authorization from the patent holder.⁵³ When a PAE asserts a patent against a customer or other accused infringer who did not manufacture the claimed technology, it relies on this provision. Last, but not least, Section 281 creates a basic remedy for patent infringement, which is to sue an accused infringer for relief in a federal district court.⁵⁴ When a PAE files a lawsuit as part of its assertion activity, it does so under the color of federal patent law.⁵⁵

At the core of PAE activity is a claim of patent infringement. A PAE—no differently than any other patent holder—has the “‘right to *try* to exclude’ by asserting its patent in court” and laying odds on a favorable outcome.⁵⁶ “Nothing in the patent grant guarantees that the patent will be declared valid, or that the defendant in the patent suit will be found to have infringed.”⁵⁷ The likelihood that a PAE can successfully prove infringement will influence the amount that the PAE can recover from that firm. The PAE’s expected revenue will also depend on the likelihood that the accused firm will assert and successfully prove one or more affirmative defenses to infringement, such as invalidity and unenforceability.⁵⁸ Importantly, if a patent is held invalid or unenforceable, that ruling would affect a

⁵² By definition, PAEs exercise the statutory right to exclude only when their claims are successful.

⁵³ 35 U.S.C. § 271(a) (2012) (“Except as otherwise provided in this title, whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent.”).

⁵⁴ 35 U.S.C. § 281 (2012) (“A patentee shall have remedy by civil action for infringement of his patent.”); 28 U.S.C. § 1338(a) (2012) (“The district courts shall have original jurisdiction of any civil action arising under any Act of Congress relating to patents, ...”). Additionally, a patent holder may file a complaint with the U.S. International Trade Commission to block the importation of infringing articles as an unfair trade practice in violation of Section 337 of the Tariff Act of 1930. *See* 19 U.S.C. § 1337(a)(1)(B) (2012).

⁵⁵ Statutory patent law does not explain *why* PAE business models exist—only that they can exist. An explanation of the incentives, risks, and rewards associated with PAE activity are largely the province of economics and organizational behavior. Nor does patent law answer the question whether PAE activity should be encouraged or discouraged. The point we make here is that patent law is consistent with PAE business models. We also clarify that, notwithstanding rights granted by the Patent Act, the antitrust laws may forbid patent acquisitions or patent assertions that harm competition.

⁵⁶ Carl Shapiro, *Antitrust Limits of Patent Settlements*, 34 RAND J. ECON. 391, 395 (2003) (emphasis in original).

⁵⁷ *Id.* For these reasons, a patent is best viewed as “a probabilistic property right.” *Id.*

⁵⁸ *See* 35 U.S.C. § 282(b) (2012). An invalidity defense must be proven by clear and convincing evidence because a patent is presumed valid. *See* 35 U.S.C. § 282(a) (2012); *Microsoft Corp. v. i4i Ltd. P’ship*, 564 U.S. 91, 95 (2011).

PAE's enforcement of that patent against other firms as well. This evaluation may affect the PAE's selection of which patents or patent claims to assert (e.g., stronger versus weaker patents).

An accused firm likewise must evaluate the likelihood of these potential outcomes, as well as the expected litigation costs, and decide how best to respond. For example, it may decide to seek the advice of patent counsel in assessing the strength of a PAE's infringement claim.⁵⁹ The accused firm must also assess the potential impact on its business should the outcome be unfavorable from its standpoint. For example, in addition to a judgment awarding actual infringement damages, the firm may also face some risk of treble damages⁶⁰ or that an exclusion order or a permanent injunction against the sale of its products may issue.⁶¹

Whether an asserted patent will be held not invalid and infringed ultimately requires a judicial interpretation of the meaning and scope of the patent claims.⁶² Unless and until a court has provided such an interpretation, there may be a significant difference of opinion between a PAE and an accused

⁵⁹ As Justice Breyer recently acknowledged, “consulting counsel may help draw the line between infringing and noninfringing uses.” *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 136 S. Ct. 1923, 1937 (2016) (Breyer, J., concurring). Advice of counsel is not required, however, to protect against a claim of willful infringement and the prospect of enhanced damages. Importantly, the Leahy–Smith America Invents Act added a new provision to the Patent Act that makes clear “[t]he failure of an infringer to obtain the advice of counsel with respect to any allegedly infringed patent, ... may not be used to prove that the accused infringer willfully infringed the patent or that the infringer intended to induce infringement of the patent.” Leahy–Smith America Invents Act, Pub. L. No. 112-29, § 17, 125 Stat. 284, 329 (2011) (codified at 35 U.S.C. § 298). *See Halo Elecs.*, 136 S. Ct. at 1937 (Breyer, J., concurring) (“[O]n the other side of the equation lie the costs and the consequent risk of discouraging lawful innovation. Congress has thus left it to the potential infringer to decide whether to consult counsel—without the threat of treble damages influencing that decision.”).

⁶⁰ *See* 35 U.S.C. § 284 (2012); *Halo Elecs.*, 136 S. Ct. at 1937 (Breyer, J., concurring) (expressing concern that “the risk of treble damages can encourage the company to settle, or even abandon any challenged activity,” which argues for careful application of Section 284, to ensure that it targets only instances of egregious misconduct). *But see id.* at 1935 (dismissing the concern that enhanced damages would ever be awarded in “garden-variety cases”). Additionally, both a PAE and an accused firm may face some risk that each will be required to pay the other party's attorney's fees should it lose the litigation, and the case is deemed “exceptional” by the trial court. *See* 35 U.S.C. § 285 (2012); *Octane Fitness, LLC v. Icon Health & Fitness, Inc.*, 134 S. Ct. 1749, 1757 (2014).

⁶¹ *See* 35 U.S.C. § 283 (2012); *eBay Inc. v. MercExchange, LLC*, 547 U.S. 388, 393 (2006) (“[S]ome patent holders, such as university researchers or self-made inventors, might reasonably prefer to license their patents, rather than undertake efforts to secure the financing necessary to bring their works to market themselves. Such patent holders may be able to satisfy the traditional four-factor test, and we see no basis for categorically denying them the opportunity to do so.”). *But see id.* at 396–97 (Kennedy, J., concurring) (“When the patented invention is but a small component of the product the companies seek to produce and the threat of an injunction is employed simply for undue leverage in negotiations, legal damages may well be sufficient to compensate for the infringement and an injunction may not serve the public interest.”).

⁶² *See Akamai Techs., Inc. v. Cable & Wireless Internet Servs., Inc.*, 344 F.3d 1186, 1192 (Fed. Cir. 2003); *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 388–89 (1996); *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1454 (Fed. Cir. 1998) (en banc).

firm as to whether the asserted patent is not invalid and infringed, or the likelihood that a judge or jury will reach the same conclusion. A decision from a court on claim interpretation, while not a final judgment in the case, may narrow or even close that difference of opinion.⁶³

If a PAE sues an accused firm for patent infringement, then the defendant firm may also assess the “nuisance value” of the case by estimating its litigation costs in terms of external legal fees and expenses and internal business disruption.⁶⁴ The defendant firm may rationally decide to settle even if it reasonably believes that it could prevail on the issue of patent validity or infringement if the settlement amount is less than the estimated cost of litigation. As we will discuss later, however, some courts have been open to considering whether filing an infringement action to extract a nuisance-value settlement rises to the level of bad faith, warranting the imposition of attorneys’ fees or other relief.⁶⁵

Prior Studies of PAE Activity and Other Literature

Drawing primarily on publicly available litigation data, a number of legal scholars and economists have attempted to estimate the amount of NPE or PAE activity as a fraction of all patent infringement lawsuits and to assess its impact on innovation and entrepreneurship. The discussion below samples prior studies and other literature addressing the purported harms and benefits of NPEs and PAEs.

⁶³ See Pauline M. Pelletier, *The Impact of Local Patent Rules on Rate and Timing of Case Resolution Relative to Claim Construction: An Empirical Study of the Past Decade*, 8 J. BUS. & TECH. LAW 451, 456 (2013) (positing that a decision by a judge on claim construction, “while not a final judgment, would no doubt make a profound impression on both parties, whether that impression removes any appetite for further expense and delay or instead inspires renewed commitment to get the case before a jury”). See also Greg Reilly, *Patent “Trolls” and Claim Construction*, 91 NOTRE DAME L. REV. 1045, 1069–70 (2016) (“If patent assertion entities are as problematic as many in the patent community believe, then it is important to address the underlying problems of claim construction and reconsider the direction in which claim construction is moving.”).

⁶⁴ See generally Hubbard, *supra* note 8. As Hubbard points out, “[t]he notion is that the prospect of expensive litigation drives the defendant to pay a settlement despite knowing that, were the case to go to trial, the defendant would probably or certainly win.” *Id.* at 1093–94. See also Rosenberg & Shavell, 2006, *supra* note 8; Rosenberg & Shavell, 1985, *supra* note 8.

⁶⁵ *SFA Sys., LLC v. Newegg Inc.*, 793 F.3d 1344, 1350 (Fed. Cir. 2015) (agreeing with Newegg “that a pattern of litigation abuses characterized by the repeated filing of patent infringement actions for the sole purpose of forcing settlements, with no intention of testing the merits of one’s claims, is relevant to a district court’s exceptional case determination under § 285” but concluding that the district court did not abuse its discretion in finding insufficient evidence of such litigation misconduct); *Eon-Net LP v. Flagstar Bancorp.*, 653 F.3d 1314, 1327 (Fed. Cir. 2011) (“The record supports the district court’s finding that Eon-Net acted in bad faith by exploiting the high cost to defend complex litigation to extract a nuisance value settlement from Flagstar.”).

In one of the earliest studies, James Bessen and Michael Meurer (2008) responded to anecdotes about the impact of “patent trolls,” which they describe as either patent holders “who opportunistically assert weak patents against the firms that actually develop the technology covered in the patent” or “small, nonproducing inventors who do not develop or commercialize new technology, who do not manufacture anything, but who do hope to snare other firms in their patent traps.”⁶⁶ Criticizing the indefiniteness of these labels, they chose a “narrow and crude” proxy for lawsuits by “trolls”—lawsuits filed by individual inventors.⁶⁷ They concluded that the percentage of infringement lawsuits involving patents awarded to individuals between 1984 and 1989 (24%) did not change materially as compared to the percentage during the period between 1990 to 1999 (22%).⁶⁸

John R. Allison et al. (2009) compared the characteristics of the 106 most litigated patents from 2000 to 2007 with a randomly selected control set of 106 patents that had been litigated only once during the same period.⁶⁹ The most litigated patents accounted for 2,987 infringement suits, or only about 14% of all suits during the study period.⁷⁰ NPEs were responsible for over 80% of suits related to these most-litigated patents, however, with the bulk of the suits (2,198) initiated by “individual-inventor-started compan[ies].”⁷¹ Allison et al. note, however, that “companies enforcing patents that cover inventions they did not themselves develop” accounted for just 7% of the lawsuits during the study period.⁷²

Sara Jeruss et al. (2012) studied lawsuits filed by “patent monetization entities” or PME.s.⁷³ Their study examined a randomly selected set of 100 patent cases filed each year from 2007 to 2011, which were

⁶⁶ JAMES E. BESSEN & MICHAEL J. MEURER, PATENT FAILURE 159 (2008).

⁶⁷ *Id.*

⁶⁸ *Id.* at 160.

⁶⁹ Allison et al., *supra* note 46, at 5.

⁷⁰ *Id.* at 25–26.

⁷¹ *Id.* The other non-practicing entity class represented in the sample is the licensing company that acquires patents (entity class 1). Allison et al. noted that their study sample was skewed by cases filed by Ronald Katz, who owned a large percentage of the most litigated patents and was involved in 60% of the suits (1,789). *Id.* at 26. “Katz is a product of the current patent system, and the Katzes of the world should be considered in evaluating the effects of that system.” *Id.*

⁷² *Id.* at 32.

⁷³ Jeruss et al., *supra* note 2, at 361.

coded for the types of entities involved in each case.⁷⁴ Based on their work, Sara Jeruss et al. reported that lawsuits filed by PME's had significantly increased over the five-year study period, from 22% of all patent cases in 2007 to 40% of all cases in 2011.⁷⁵ Additionally, the authors observed that PME's were among the most litigious; of the five parties that filed the most lawsuits during the five-year study period, four of them were PME's.⁷⁶

Robin Feldman and Sara Jeruss, along with Tom Ewing, subsequently expanded their study in 2013 to look at the entire set of patent cases filed in 2007, 2008, 2011, and 2012.⁷⁷ In a second paper, they reported that the larger data set confirmed that patent cases filed by PME's had risen dramatically over a remarkably short period of time.⁷⁸ Notably, they found that PME cases accounted for 58.7% of all patent infringement lawsuits filed in 2012, compared to only 24.6% in 2007.⁷⁹ Furthermore, the ten parties filing the most lawsuits during the years studied were all PME's, according to the authors.⁸⁰

A question of interest to researchers is whether the September 2011 passage of the Leahy–Smith America Invents Act (AIA) has had any impact on the volume or percentage of NPE- or PAE-filed lawsuits relative to patent infringement suits overall.⁸¹ One of the litigation reforms implemented by the AIA prohibits a patent holder from joining multiple accused infringers as co-defendants in a single lawsuit unless their liability for infringement is joint and several, or arises out of the same transaction, occurrence, or series of transactions or occurrences, or there are questions of fact common to all

⁷⁴ *Id.* at 364. The authors shared their coded data with the Government Accountability Office (GAO), which had been commissioned by Congress to study the consequences of PAE litigation activity pursuant to the Leahy–Smith America Invents Act. *See* Pub. L. No. 112-29, § 34, 125 Stat. 284, 340 (2011). *See infra* notes 122–123 and accompanying text.

⁷⁵ Jeruss et al., *supra* note 2, at 361.

⁷⁶ *Id.*

⁷⁷ Feldman et al., *supra* note 2.

⁷⁸ *Id.* at 7.

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ Leahy–Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011).

defendants that will arise in the lawsuit.⁸² A PAE that would have joined five accused infringers as defendants in a single lawsuit pre-AIA might instead file five separate lawsuits post-AIA because of the anti-joinder rule. Or that PAE might still file one lawsuit, but only against a single accused infringer because of the new rule.

Two recent studies have examined whether the AIA has affected the share of patent infringement suits filed by NPEs or PAEs. Feldman et al. (2013) considered this possible effect in their analysis of patent cases filed in 2012. They reported that the number of defendants sued by PMEs declined following passage of the AIA, which, in their view, “may suggest that changes in the [AIA] had at least some initial success in encouraging patent monetization entities not to cast their nets so widely.”⁸³ But even with the AIA, they noted, patent cases filed by PMEs were still much higher in 2012 than they were in 2007 and 2008.⁸⁴

Christopher Cotropia, Jay Kesan, and David Schwartz (2014) also studied the effect of the AIA on PAE litigation activity.⁸⁵ They collected 2,520 infringement lawsuits filed in 2010 and 5,185 lawsuits filed in 2012 and coded each plaintiff into one of eight entity types: operating company, university, individual inventor, patent aggregator, technology development company, failed start-up, IP holding subsidiary of an operating company, or patent holding company.⁸⁶ Despite the fact that 2012 saw twice as many filed cases as 2010, Cotropia et al. found essentially no change in the number of unique patent holders that initiated patent infringement suits (1,667 versus 1,588) or in the number of unique defendants (9,419 versus 9,894).⁸⁷ Consequently, the authors concluded that the increase in the number of filed cases could likely be attributed in large part to the AIA’s anti-joinder rule.⁸⁸ Cotropia et al. found that

⁸² *Id.* § 19(d), 125 Stat. at 332 (codified at 35 U.S.C. § 299).

⁸³ Feldman et al., *supra* note 2, at 7.

⁸⁴ *Id.*

⁸⁵ Cotropia et al., *supra* note 2.

⁸⁶ *Id.* at 654. Patent aggregators and patent holding companies filed 448 cases in 2010 and 2,278 cases in 2012.

⁸⁷ *Id.* at 675–76, 678.

⁸⁸ *Id.* at 683 (“One way to consider this is that the AIA has added substantial cost to the system, by increasing the number of lawsuits, without decreasing the number of patentees or defendants.”).

the entity types that most resemble PAEs (patent aggregators and patent holding companies) accounted for 17.8% of cases filed in 2010 and 43.9% of cases in 2012.⁸⁹ The authors noted that their calculated 2012 percentage was significantly lower than the 58.7% calculated by Feldman et al.⁹⁰

Apart from the studies of NPE and PAE lawsuits, prior literature has attempted to identify and describe the potential harms and benefits of patent assertion activity.⁹¹ Researchers and commentators generally have devoted their attention to the following three categories of potential harms. First, patent assertion activity can impose litigation and licensing costs that are not commensurate with the value of the patented technology at issue, thereby creating an unwanted tax on innovative products and services.⁹² Second, lawsuits can disproportionately affect startups and small firms, thereby hindering or inhibiting

⁸⁹ *Id.* at 694–95.

⁹⁰ *Id.* at 695.

⁹¹ For a historical treatment of NPEs, see Adam Mossoff, *Patent Licensing and Secondary Markets in the Nineteenth Century*, 22 GEO. MASON L. REV. 959 (2015); B. Zorina Khan, *Trolls and Other Patent Inventions: Economic History and the Patent Controversy in the Twenty-First Century*, 21 GEO. MASON L. REV. 825 (2014); Gerard N. Magliocca, *Blackberries and Barnyards: Patent Trolls and the Perils of Innovation*, 82 NOTRE DAME L. REV. 1809 (2007).

⁹² See, e.g., Robin Feldman & Mark A. Lemley, *Do Patent Licensing Demands Mean Innovation?*, 101 IOWA L. REV. 137, 173 (2015) (“Licensees in our survey are paying for freedom to operate—the right not to be sued for implementing technology they developed on their own but which someone has asserted will fit within their patent rights.”); Scott Morton & Shapiro, *supra* note 2, at 494 (“Credible outsized threats act like a “tax” on downstream firms, raising prices, distorting innovation markets, and harming competition, contrary to the goals of our antitrust laws.... Patent monetization harms consumers and decreases social welfare if the asserted patents do not create substantial value for the target products or consumers and if the original innovator does not receive a significant fraction of costs imposed by the PAE on its targets.”); Erik Hovenkamp, *Predatory Patent Litigation: How Patent Assertion Entities Use Reputation to Monetize Bad Patents* 19–20 (Aug. 5, 2013) (unpublished manuscript), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2308115 (Predatory patent litigation is “unnecessary to monetize strong patents; it creates no heightened incentive to develop inventions that legitimately merit legal protection.... Additionally, by its nature, predatory patent litigation typically involves no promulgation of new ideas.”); Brian J. Love, *An Empirical Study of Patent Litigation Timing: Could a Patent Term Reduction Decimate Trolls Without Harming Innovators?*, 161 U. PA. L. REV. 1309, 1347 (2013) (“Instead, NPEs appear to be engaged in classic troll-like behavior: suing the better part of a well-established industry for infringement of an aging patent, generally one covering software or high-tech subject matter, and consistently losing those claims when pushed to prove their infringement allegations.”); Tom Ewing & Robin Feldman, *The Giants Among Us*, 2012 STAN. TECH. L. REV. 1, 25 (2012) (“[A] tax on production is likely to have the effect of reducing genuine product innovation.”); John R. Allison et al., *Patent Quality and Settlement Among Repeat Patent Litigants*, 99 GEO. L.J. 677, 709 (2011) (suggesting that a payment to a patent holder “might represent not the acquisition of real legal rights but a nuisance settlement over a likely invalid patent”); James Bessen et al., *The Private and Social Costs of Patent Trolls*, REGULATION, Winter 2011–12, at 26, <http://www.cato.org/regulation/winter-2011-2012/private-social-costs-patent-trolls> (“To the extent that this litigation represents an unavoidable business cost to technology developers, it reduces the profits that these firms make on their technology investments.”). See also Mark A. Lemley & Robin Feldman, *Patent Licensing, Technology Transfer, and Innovation*, 106 AM. ECON. REV. 188, 188 (2016) (“Patent law’s focus on the creation of new products is particularly important with the emergence of the nonpracticing entity business model.”); Fiona M. Scott Morton & Carl Shapiro, *Patent Assertions: Are We Closer to Aligning Reward to Contribution?*, 16 INNOVATION POLICY AND THE ECONOMY 89, 96–97 (Josh Lerner & Scott Stern eds., 2016) (referring to credible outsized threats as a tax on innovation).

entrepreneurship and related investments.⁹³ Third, an increase in litigation and licensing activity can divert technical talent and other corporate resources away from developing new products and engaging in research and development, a result that is socially wasteful and inconsistent with the fundamental goals of the patent system.⁹⁴

⁹³ See, e.g., Stephen Kiebzak et al., *The Effect of Patent Litigation and Patent Assertion Entities on Entrepreneurial Activity*, 45 RES. POL'Y 218, 230 (2016) ("We find evidence that high levels of patent litigation have, in general, a statistically negative relation with VC investment, while low levels of patent litigation have a statistically positive relation with VC investment.... The concave relationship between patent litigation and venture capital funding appears to be particularly pronounced for sectors such as IT, where there are patents with less clearly defined boundaries than other sectors such as chemicals or pharmaceuticals."); Robin Feldman & Evan Frondorf, *Patent Demands and Initial Public Offerings*, 19 STAN. TECH. L. REV. 52, 89 (2015) ("Despite a limited sample, the evidence presented supports the existence of a strategy among monetizers to pursue demands against companies during one of the most public and vulnerable periods of their development—the completion and aftermath of their IPOs. These patent demands serve to extract settlements and licensing fees knowing that companies have insufficient time, funds, and human capital to spend on a thoughtful examination of the claims."); Colleen V. Chien, *Startups and Patent Trolls*, 17 STAN. TECH. L. REV. 461, 472 (2014) ("The survival of entrepreneurial companies depends on their focus and ability to execute against operational milestones. I found that this makes them uniquely vulnerable to PAE demands, which can divert scarce money and founder time from the business, incense management, and at times, force significant operational changes.").

⁹⁴ See, e.g., Lauren Cohen et al., *The Growing Problem of Patent Trolling*, 352 SCIENCE 521, 521–22 (2016) (finding that after settling with NPEs, firms on average reduce their R&D investment by 25%; causes of reduction are not directly identifiable); Feldman & Lemley, *Do Patent Licensing Demands Mean Innovation?*, *supra* note 92, at 176 ("Companies are increasingly spending significant amounts of time, resources, and creative energy responding to ex post patent assertion both inside and outside of litigation. Our results suggest that this vast amount of activity is largely unproductive, no matter who initiates it—an NPE, a product company or a university. Ex post licensing may be promoting transactions, but not necessarily economically efficient transactions."); James Bessen & Michael J. Meurer, *The Direct Costs from NPE Disputes*, 99 CORNELL L. REV. 387, 423 (2014) ("These findings imply that the recent surge in NPE litigation is a significant social problem associated with billions of dollars of socially wasteful expenditure each year, as well as reduced innovation incentives for both small and large firms."); Roger Smeets, *Does Patent Litigation Reduce Corporate R&D? An Analysis of U.S. Public Firms* 28–29 (Apr. 28, 2014) (unpublished manuscript), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2443048 ("Patent litigation involvement (as an alleged infringer) reduces subsequent R&D intensity, but only in small firms (with less than 500 employees), and only following extensive lawsuits (in which many legal documents are filed).... The estimated effects are substantial—ranging from 2.6–4.7%-point reductions in R&D intensity—and relatively persistent—occurring during up to three years following the initiation of a patent lawsuit... These results suggest that, in some cases, patent litigation creates social waste in terms of reduced innovation (R&D)."); Catherine E. Tucker, *Patent Trolls and Technology Diffusion: The Case of Medical Imaging* 4, 22 (Apr. 14, 2014) (unpublished manuscript), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1976593 ("This last result emphasizes that even if patent-assertion entities do not prevail in the courtroom, their actions can have significantly negative consequences for incremental innovation while litigation is ongoing."); Allison et al., *supra* note 92, at 709 ("Society is spending a large chunk of its patent law resources dealing with what are—for whatever reason—the weakest cases. And patent plaintiffs are pursuing those cases despite the overwhelming odds against them."); Bessen et al., *supra* note 92, at 26 ("We find that NPE lawsuits are associated with half a trillion dollars of lost wealth to defendants from 1990 through 2010.... To the extent that this litigation represents an unavoidable business cost to technology developers, it reduces the profits that these firms make on their technology investments. That is, these lawsuits substantially reduce their incentives to innovate."). But see David L. Schwartz & Jay P. Kesan, *Analyzing the Role of Non-Practicing Entities in the Patent System*, 99 CORNELL L. REV. 425 (2014) (critiquing Bessen & Meurer, *The Direct Costs from NPE Disputes*); Ted M. Sichelman, *Are Patent Trolls "Opportunistic"?* (San Diego Legal Studies Paper No. 14-175, 2014), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2520125 (critiquing an earlier version of Lauren Cohen et al., *Patent Trolls: Evidence from Targeted Firms* (Harv. Bus. Sch., Working Paper No. 15-002, 2016), http://www.hbs.edu/faculty/Publication%20Files/15-002_1d86bb91-630b-43b9-949d-16cfa36a5f58.pdf).

Other researchers and commentators, however, have devoted their attention to three categories of potential benefits of NPEs and PAEs. First, a common justification of the NPE or PAE business model is that it enables individual inventors and small patent holders to enforce their property rights more effectively and efficiently against accused infringers that otherwise might ignore their demands for adequate compensation.⁹⁵ Second, NPEs and PAEs are sometimes characterized as intermediaries or brokers that are better able to present an inventor's patented technology to those best positioned to implement and derive commercial value from it.⁹⁶ Third, NPEs and PAEs may help to create a stable

⁹⁵ See, e.g., Ron D. Katznelson, *The \$83 Billion Patent Litigation Policy*, REGULATION, Spring 2016, at 14, 16, <http://www.cato.org/regulation/spring-2016/83-billion-patent-litigation-fallacy> (“A significant portion of that \$4 trillion increase—\$667 billion per year—must be attributable to the appreciating value of patent rights as a result of successful efforts to protect those rights during that period, including efforts by NPEs.”); Ryan T. Holte, *Trolls or Great Inventors: Case Studies of Patent Assertion Entities*, 59 ST. LOUIS U. L.J. 1, 43 (2014) (arguing that cases “support[] the countervailing view of PAEs representing the interests of ‘Horatio Alger Inventors’ who tirelessly labor to build bridges of innovation and who seek only their fair share”); Anne Layne-Farrar, *The Brothers Grimm Book of Business Models: A Survey of Literature and Developments in Patent Acquisition and Litigation*, 9 J.L. ECON. & POL’Y 29, 56 (2012) (“Patent litigation may indeed have social costs, as Bessen et al. argue, but it is difficult to see how we might reduce those costs without killing the many benefits associated with enforceable patent rights.”); Michael Risch, *Patent Troll Myths*, 42 SETON HALL L. REV. 457, 498 (2012) (“Individuals may face a significant disadvantage in high-stakes patent litigation unless they allow NPEs to enforce their patents. This means that NPE litigation may be the best way for garage inventors to capitalize on their patents if infringers refuse to license.”); Bruce L. Beron & Jason E. Kinsella, *David v. Goliath Patent Cases: A Search for the Most Practical Mechanism of Third Party Litigation Financing for Small Plaintiffs*, 38 N. KY. L. REV. 605, 620–21 (2011) (“However, these costs and the consequential disparity in access to the justice system are magnified when looked at through the lens of the small private entity or individual inventor seeking to protect their patent from a larger adversary, owing to the particularly complex nature of intellectual property claims.”); Gwendolyn G. Ball & Jay P. Kesan, *Transaction Costs and Trolls: Strategic Behavior by Individual Inventors, Small Firms and Entrepreneurs in Patent Litigation* 3 (Ill. Pub. Law & Legal Theory Paper Series No. 08-21, 2009), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1337166 (“Thus, the transaction costs associated with litigation may have a major impact on the ability of start-ups, entrepreneurs and individual inventors to defend their property rights.”). But see Lemley & Feldman, *Patent Licensing, Technology Transfer, and Innovation*, *supra* note 92, at 189 (“In short, there is little evidence that NPEs contribute either directly or indirectly to the creation of products anywhere in the system.”).

⁹⁶ See, e.g., Kristen Osenga, *Formerly Manufacturing Entities: Piercing the “Patent Troll” Rhetoric*, 47 CONN. L. REV. 435, 466 (2014) (“[T]hrough their earlier manufacturing or retail business models, companies in the formerly manufacturing entity category gained valuable knowledge about the nature, value, and commercialization of patented innovation. . . . These characteristics suggest that formerly manufacturing entities uniquely have positive effects on core patent policies: incentivizing invention and commercialization—a very important insight that is buried underneath the unclear and inflammatory “patent troll” rhetoric.”); Andrei Hagiu & David B. Yoffie, *The New Patent Intermediaries: Platforms, Defensive Aggregators, and Super-Aggregators*, 27 J. ECON. PERSP. 45, 61 (2013) (“Given the organizational complexity of the new patent intermediaries and the multiplicity of channels through which they affect participants in the patent market, it is very difficult to draw clear conclusions about whether they generate net benefits or costs for society. Nevertheless, it is useful to point out that intermediation mechanisms that move the imperfect patent system in the direction of enhancing rewards for innovation are more likely to be a positive, while mechanisms that move the system in the direction.”); Michael J. Mazzeo et al., *Do NPEs Matter? Non-Practicing Entities and Patent Litigation Outcomes*, 9 J. COMPETITION L. & ECON. 879, 902 (2013) (“Accordingly, PAEs may have fewer reasons to bear the high costs and risks of patent litigation, and may be more likely to approach patent litigation as a means to obtain returns on their patent acquisitions. Settlement may be a more rational decision for such PAEs, even when they hold valid and infringing (and valuable) patent rights.”); Julien Pénin,

and efficient marketplace for patents to be bought and sold, thereby creating liquidity in patents as corporate assets and reallocating litigation risk to parties better able to absorb it.⁹⁷

Importantly, most researchers and commentators do not view NPEs and PAEs as categorically harmful or beneficial. Instead, the conclusion may depend on the circumstances and context. And then there are those who believe NPEs and PAEs are not to blame; they are merely the product of a broken patent system that needs reform.⁹⁸

Strategic Uses of Patents in Markets for Technology: A Story of Fabless Firms, Brokers and Trolls, 84 J. ECON. BEHAVIOR & ORG. 633, 640 (2012) (“We have showed that while patent brokers in their pure form always increase total R&D investments, pure patent trolls do not. This work therefore clearly stresses that one must distinguish between different kinds of NPEs. Not all are trolls.”); Sannu K. Shrestha, *Trolls or Market-Makers? An Empirical Analysis of Nonpracticing Entities*, 110 COLUM. L. REV. 114, 149 (2010) (“[T]he finding that NPEs own valuable patents also bodes well for supporters who argue that these firms serve as valuable intermediaries for independent inventors.... The most we can say based on this analysis is that NPEs sometimes enhance innovation by providing capital to the most promising independent inventors and small businesses and encouraging further inventive efforts.”). *But see* Feldman & Lemley, *Do Patent Licensing Demands Mean Innovation?*, *supra* note 92, at 173 (“Based on our very preliminary evidence, the theory that NPEs facilitate innovation via patent license demands either through the creation of new products or by delivering actual technical know-how from inventors to implementers does not seem to hold water.... Thus, the study does not support the efficient middleman hypothesis for characterizing the role of NPEs.”); Lemley & Feldman, *Patent Licensing, Technology Transfer, and Innovation*, *supra* note 92, at 189 (addressing the same point).

⁹⁷ See, e.g., Michael Risch, *Licensing Acquired Patents*, 21 GEO. MASON L. REV. 979, 1000 (2014) (“By identifying important patents; settling litigation licensing terms that grant some freedom to operate; and allowing manufacturers to decide whether and when to pay attention to patents—as opposed to leaving the uncertain outcomes lurking in a context of undefended but extant patents—licensing of acquired patents can benefit commercialization through certainty and ordering of the market.”); Alberto Galasso et al., *Trading and Enforcing Patent Rights*, 44 RAND J. ECON. 275, 306 (2013) (“From a welfare perspective, our findings imply that the market for innovation reduces litigation by reallocating patents to entities that are more effective at resolving disputes over these rights without resorting to the courts, and this represents a source of both private benefits and social welfare gains. In short, our analysis characterizes and quantifies the enforcement gains from trade from the market for patents, measured in terms of reduction in litigation risk.”); Mark A. Lemley & Nathan Myhrvold, *How to Make a Patent Market*, 36 HOFSTRA L. REV. 257, 258 (2007) (suggesting that liquidity also requires transparency; “[t]he solution is straightforward—require publication of patent assignment and license terms.”); James F. McDonough III, *The Myth of the Patent Troll: An Alternative View of the Function of Patent Dealers in an Idea Economy*, 56 EMORY L.J. 189, 190 (2006) (“Patent trolls provide liquidity, market clearing, and increased efficiency to the patent markets—the same benefits securities dealers supply capital markets.”). *But see* Michael J. Burstein, *Patent Markets: A Framework for Evaluation*, 47 ARIZ. ST. L.J. 507, 512 (2015) (questioning liquidity premise and noting that “[t]here appears to be an underlying normative premise to these arguments: that those robust, liquid patent markets would be socially beneficial. That premise has, for the most part, gone unexamined.”).

⁹⁸ See, e.g., David O. Taylor, *Legislative Responses to Patent Assertion Entities*, 23 TEX. INTELL. PROP. L.J. 313, 317 (2015) (attributing concerns about PAEs to problems of patent quality, litigation, and asymmetry between the litigating parties); Lemley & Melamed, *supra* note 2, at 2170 (“But we believe trolls are a symptom of the real problems, not their cause. Trolls are opportunists that exploit flaws in the patent system. The growth of patent trolls, coupled with the costs of practicing entity licensing and litigation, suggests systemic problems that are not limited to trolls.”); Timo Fischer & Joachim Henkel, *Patent Trolls on Markets for Technology – An Empirical Analysis of NPEs’ Patent Acquisitions*, 41 RES. POL’Y 1519, 1531 (2012) (“The existence of patent-only transactions points to two inefficiencies. The first is an inefficiency in the patent system.... The second inefficiency concerns markets for technology.... To the extent that such transactions relate to patents only and are caused by inadvertent infringement, they are not indications of efficiency-enhancing technology transfers, but rather of

Government Interest in and Response to PAE Activity

The rise in patent infringement lawsuits brought by PAEs, and more generally by NPEs, has garnered the attention of not only the Commission, but other agencies and branches of the federal government as well.

United States Patent and Trademark Office

The USPTO has addressed public concerns regarding abusive or frivolous litigation through three main avenues: improving transparency regarding patent ownership, improving the quality of issued patents, and providing information to consumers and retailers regarding the risks and benefits of litigating or settling a patent suit.⁹⁹

With respect to the first avenue, the USPTO issued a notice of proposed rulemaking in January 2014, seeking comments from the public on rules of practice that would provide greater transparency concerning the ownership of patents and patent applications.¹⁰⁰ The agency proposed to collect information from patent applicants and patent holders regarding the “attributable owners” of a patent or patent application, which would include not only titleholders but also enforcement entities, and their ultimate parent entity, if any.¹⁰¹ The agency expected that reporting of attributable ownership would mostly come from PAEs because of their use of complicated corporate structures and licenses, often “to hide their true identities from the public.”¹⁰²

inefficiencies in both the patent system and in markets for technology. The existence of NPEs in particular, signals such inefficiencies.”).

⁹⁹ See, e.g., Press Release, The White House, Fact Sheet: Executive Actions: Answering the President’s Call to Strengthen Our Patent System and Foster Innovation (Feb. 20, 2014), <https://www.whitehouse.gov/the-press-office/2014/02/20/fact-sheet-executive-actions-answering-president-s-call-strengthen-our-p> [hereinafter White House Press Release], see also Michelle K. Lee, Director of the USPTO, Remarks at the Consumer Elecs. Show (Jan 18, 2016), <http://www.uspto.gov/about-us/news-updates/remarks-director-michelle-k-lee-consumer-electronics-show> (addressing USPTO’s focus on Patent Trial and Appeal Board proceedings as a “faster and lower-cost alternative to district court litigation to confirm the quality of issued patents”).

¹⁰⁰ U.S. Patent & Trademark Office, Changes to Require Identification of Attributable Owner, 79 Fed. Reg. 4105 (proposed Jan 24, 2014) (to be codified at 37 C.F.R. pt. 1).

¹⁰¹ *Id.* at 4106.

¹⁰² *Id.*

The FTC and the DOJ supported USPTO's efforts to provide more complete information to the public regarding patent ownership,¹⁰³ and the USPTO held public hearings on ownership transparency in Alexandria and San Francisco in March 2014.¹⁰⁴ At this time, the USPTO has decided not to issue final rules.¹⁰⁵ Congress, however, has proposed identification of a patent assignee's "ultimate parent entity" as part of early disclosure requirements in patent infringement actions and as a precondition to a patent holder's claim of willful infringement.¹⁰⁶

The USPTO also has engaged in a comprehensive initiative to increase the quality of granted patents.¹⁰⁷ The initiative focuses on improving three "pillars" of patent quality: excellence in (1) work products; (2) measuring patent quality; and (3) customer service. The USPTO has stated that "high quality patents permit certainty and clarity of rights," which in turn can promote innovation and "reduce[] needless litigation."¹⁰⁸ The FTC and the DOJ jointly supported the USPTO's quality improvement efforts in part because clearer patent notice can lead to a more efficient marketplace for patents.¹⁰⁹ The USPTO also has developed training programs for examiners and judges to ensure that "functional claims" are clearly drafted and can be consistently enforced.¹¹⁰

¹⁰³ Public Comment from U.S. Dep't of Justice & Fed. Trade Comm'n to the U.S. Patent & Trademark Office, *supra* note 23.

¹⁰⁴ U.S. Patent & Trademark Office, Notice of Public Hearings and Extension of Comment Period on the Proposed Changes To Require Identification of Attributable Owner, 79 Fed. Reg. 9677 (Feb. 20, 2014).

¹⁰⁵ See *Attributable Ownership*, U.S. PATENT & TRADEMARK OFFICE, <http://www.uspto.gov/patent/initiatives/attributable-ownership>. Relatedly, the USPTO also held a roundtable on ownership transparency in January 2013. *Real Property[sic] in Interest Roundtable*, U.S. PATENT & TRADEMARK OFFICE, <http://www.uspto.gov/about-us/news-updates/real-property-interest-roundtable>.

¹⁰⁶ See, e.g., Innovation Act, H.R. 9, 114th Cong. (2015) (as reported by H. Comm. on the Judiciary, July 29, 2015); PATENT Act, S. 1137, 114th Cong. (2015) (as reported by S. Comm. on the Judiciary, Sept. 8, 2015).

¹⁰⁷ U.S. Patent & Trademark Office, Request for Comments on Enhancing Patent Quality, 80 Fed. Reg. 6475 (Feb. 5, 2015). The comment period was subsequently extended. U.S. Patent & Trademark Office, Extension of the Period for Comments on Enhancing Patent Quality, 80 Fed. Reg. 26, 914 (May 11, 2015).

¹⁰⁸ Request for Comments on Enhancing Patent Quality, 80 Fed. Reg. at 6476.

¹⁰⁹ Public Comment from Fed. Trade Comm'n & U.S. Dep't of Justice to the U.S. Patent & Trademark Office Request for Comments on Enhancing Patent Quality (May 6, 2015), <https://www.ftc.gov/policy/policy-actions/advocacy-filings/2015/05/comment-united-states-federal-trade-commission-united>.

¹¹⁰ See White House Press Release, *supra* note 99; *Examination Guidance and Training Materials*, U.S. PAT. & TRADEMARK OFFICE, <http://www.uspto.gov/patent/laws-and-regulations/examination-policy/examination-guidance-and-training-materials>.

To provide more information to consumers and “Main Street” retailers, the USPTO has developed an online toolkit to address common questions regarding demand letters and patent infringement litigation.¹¹¹ The portal centralizes “a wide-ranging, powerful set of patent-relevant tools and information, including answers to commonly asked questions about patent-demand letters and a catalog of third-party sites that users can access to find out, for example, whether the patent has ever been asserted in litigation.”¹¹²

The White House

In June 2013, the Executive Office of the President issued a report entitled *Patent Assertion and U.S. Innovation*.¹¹³ The report indicated that the number of “suits brought by PAEs had tripled in just the last two years, rising from 29 percent of all infringement suits to 62 percent of all infringement suits,” and suggested that this activity might have “a negative impact on innovation and economic growth.”¹¹⁴ At the same time, however, the report acknowledged that NPEs “can play a useful role in the innovation ecosystem.”¹¹⁵ Specifically, “[f]irms that aggregate and manage patents can play an important intermediary role, bringing value to society by more efficiently matching inventors to patent users in an otherwise illiquid market, and by developing expertise in legitimately protecting patents from infringement.”¹¹⁶

In March 2016, the President’s Council of Economic Advisers released an issue brief that functions as an update to the 2013 *Patent Assertion* report.¹¹⁷ Citing patent litigation research conducted by others,

¹¹¹ *Patent Litigation: Been Sued or Gotten a Demand Letter? Answers to Common Questions About Abusive Patent Litigation*, U.S. PATENT & TRADEMARK OFFICE, <http://www.uspto.gov/patents-maintaining-patent/patent-litigation/patent-litigation>.

¹¹² White House Press Release, *supra* note 99.

¹¹³ EOP PATENT ASSERTION AND U.S. INNOVATION REPORT, *supra* note 2; EOP REPORT ADDENDUM, *supra* note 2.

¹¹⁴ EOP PATENT ASSERTION AND U.S. INNOVATION REPORT, *supra* note 2.

¹¹⁵ *Id.* at 2.

¹¹⁶ *Id.*

¹¹⁷ EXECUTIVE OFFICE OF THE PRESIDENT, COUNCIL OF ECONOMIC ADVISERS ISSUE BRIEF, THE PATENT LITIGATION LANDSCAPE: RECENT RESEARCH AND DEVELOPMENTS (2016), https://www.whitehouse.gov/sites/default/files/page/files/201603_patent_litigation_issue_brief_cea.pdf.

the brief observed that the share of infringement cases brought by NPEs has grown over time, from below 30% of all cases in 2009 to over 60% in 2014, and that about 89% of NPE cases appear to have been filed by PAEs.¹¹⁸ The brief concluded by noting that although lawsuits are an important tool for inventors and other patent holders to protect patents from infringement, they “can also be used opportunistically when the cost of litigating is higher than the cost of settlement.”¹¹⁹

United States Congress

Congress has taken an interest in PAEs. In April 2013, the Congressional Research Service (CRS) issued a report about the “patent trolls” debate.¹²⁰ That report cited a study by James Bessen and Michael Meurer estimating that “PAE activity cost defendants and licensees \$29 billion in 2011, a 400% increase over \$7 billion in 2005,” and that “the losses are mostly deadweight, with less than 25% flowing to innovation and at least that much going towards legal fees.”¹²¹

In August 2013, the Government Accountability Office (GAO) reported to Congress that, between 2007 and 2011, the share of all patent lawsuits accounted for by PAEs rose from 17% to 24% and that lawsuits by PAEs involved about twice as many defendants as lawsuits by manufacturing companies.¹²² In addition, the GAO worked with Robin Feldman, Tom Ewing, and Sara Jeruss to examine a random sample of 100 patent infringement cases filed each year between 2007 and 2011 and found that lawsuits

¹¹⁸ *Id.* at 2–3. (citing Cotropia et al., *supra* note 2; 2013 GAO REPORT, *supra* note 2; Lemley & Melamed, *supra* note 2; among others).

¹¹⁹ *Id.* at 7.

¹²⁰ BRIAN T. YEH, CONG. RESEARCH SERV., R42668, AN OVERVIEW OF THE “PATENT TROLLS” DEBATE (2013).

¹²¹ *Id.* at 2 & n.10 (citing James Bessen & Michael J. Meurer, *The Direct Costs from NPE Disputes* (working paper subsequently published at 99 CORNELL L. REV. 387 (2014)) but also noting criticism of the study by David L. Schwartz & Jay P. Kesan, *Analyzing the Role of Non-Practicing Entities in the Patent System* (working paper subsequently published at 99 CORNELL L. REV. 925 (2014))).

¹²² 2013 GAO REPORT, *supra* note 2, at 17–18. *See also* Colleen V. Chien, Assistant Professor, Santa Clara Univ., Remarks at FTC & DOJ Patent Assertion Entity Activities Workshop: Patent Assertion Entities (Dec. 10, 2012) at 23, https://www.ftc.gov/sites/default/files/documents/public_events/patent-assertion-entity-activities-workshop/cchien.pdf (finding that PAEs brought 61% of patent lawsuits in the first 11 months of 2012, compared to 45% in 2010, and 19% in 2006).

by patent monetization entities increased from 22% in 2007 to 40% in 2011.¹²³ Congress has consulted both the CRS report and the GAO report in introducing bills to address the reported increase in PAE litigation activity.

For example, two patent reform bills reported to the House and the Senate in 2015, H.R. 9 and S. 1137, make similar proposals on the following issues:¹²⁴

- *Greater specificity in demand letters*: Both bills include provisions that would require patent holders to provide basic information about the nature of the claimed infringement in their demand letters.¹²⁵ These proposals reflect Congress's concern that PAEs may be sending false or misleading demands to goad recipients into entering quick settlements.¹²⁶
- *Heightened pleading requirements*: Both bills include provisions that would require complaints alleging patent infringement to contain more details regarding the claimed infringement.¹²⁷ These proposals would essentially codify the use of infringement contentions that some judicial districts currently require by local rule from patent infringement plaintiffs as post-filing disclosures.¹²⁸

¹²³ Jeruss et al., *supra* note 2, at 361. Feldman et al. later examined all litigation filed in four years, 2007, 2008, 2011, and 2012, analyzing roughly 13,000 cases and almost 30,000 patents asserted in those cases. Feldman et al., *supra* note 2, at 6.

¹²⁴ Innovation Act, H.R. 9, 114th Cong. (2015) (as reported by H. Comm. on the Judiciary, July 29, 2015); PATENT Act, S. 1137, 114th Cong. (2015) (as reported by S. Comm. on the Judiciary, Sept. 8, 2015).

¹²⁵ H.R. 9 § 3(f) (proposing to amend 35 U.S.C. § 284 to require that pre-suit notification relied on by a patent holder to establish willful infringement must identify with particularity the asserted patent and the accused product or process, and explain with particularity how the accused product or process infringes); S. 1137 § 8 (making similar proposal to amend 35 U.S.C. § 284).

¹²⁶ H.R. 9 § 3(e) ("It is the sense of Congress that it is an abuse of the patent system and against public policy for a party to send out purposely evasive demand letters to end users alleging patent infringement."); S. 1137 § 9 (proposing a new section of the Patent Act that would make the widespread sending of abusive demand letters an unfair and deceptive act or practice in violation of Section 5 of the FTC Act).

¹²⁷ H.R. 9 § 3(a) (proposing a new section of the Patent Act that would require patent infringement complaints to contain infringement contentions identifying each asserted patent, each allegedly infringed claim, and each accused product, and mapping the elements of each claim to the aspects or features of each accused product); S. 1137 § 3(b) (making similar proposal).

¹²⁸ See, e.g., N.D. CAL. PATENT L.R. 3-1; E.D. TEX. P. R. 3-1; N.D. ILL. L. PATENT R. 2.2. See generally Megan M. La Belle, *The Local Rules of Patent Procedure*, 47 ARIZ. ST. L.J. 63, 113–17 (2015) (suggesting that concerns regarding abusive patent

- *Greater transparency of patent ownership*: Both bills include provisions requiring the identification of assignees of each asserted patent and their “ultimate parent entity,” if any.¹²⁹ These proposals address perceived concerns that PAEs bringing litigation may be controlled by another entity, whose relationship with the PAE is opaque and who may be judgment-proof.
- *End-user stay of infringement litigation*: Both bills include provisions that enable customer or end-user defendants to stay infringement litigation so as to allow the manufacturer or supplier of the accused product or technology to intervene in the litigation.¹³⁰
- *Limiting discovery costs*: Both bills include provisions that would cabin discovery costs by staying discovery during the pendency of a motion to dismiss, motion to transfer, or motion to sever.¹³¹ The bills also propose that the Judicial Conference of the United States develop rules and procedures to implement proposed reforms that address concerns about asymmetries in discovery burdens and costs in patent cases.¹³²
- *Fee-shifting to losing parties*: Both bills include fee shifting, which would allow the prevailing party in a patent case to obtain fees from the losing party if the litigation position or conduct of the losing party was not objectively reasonable or reasonably justified.¹³³

litigation have created a “policy window” for stakeholders to consider the adoption of a set of national rules governing patent procedure).

¹²⁹ H.R. 9 § 4(a) (proposing an amendment to 35 U.S.C. § 290); S. 1137 § 10(a) (proposing a new section of the Patent Act). As the proposals make clear, the term “ultimate parent entity” is intended to have the same meaning as in the rules promulgated by the FTC and DOJ under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, 16 C.F.R. § 801.1(a)(3) (2015).

¹³⁰ H.R. 9 § 5; S. 1137 § 4.

¹³¹ H.R. 9 § 3(d); S. 1137 § 5.

¹³² H.R. 9 § 6; S. 1137 § 6.

¹³³ H.R. 9 § 3(b) (“[U]nless the court finds that the position and conduct of the nonprevailing party or parties were reasonably justified in law and fact”); S. 1137 § 7 (“If the court finds that the position of the non-prevailing party was not objectively reasonable in law or fact or that the conduct of the non-prevailing party was not objectively reasonable.”).

United States Supreme Court

Issues surrounding infringement lawsuits brought by PAEs and NPEs have arisen in the Supreme Court. Justice Kennedy’s concurrence in *eBay Inc. v. MercExchange, L.L.C.* cited the FTC’s description of patent assertion firms from its 2003 report.¹³⁴ In that case, the Supreme Court held that the traditional four-factor test for awarding permanent injunctive relief applies in patent infringement cases. Justice Kennedy suggested that trial courts, in exercising their equitable discretion over injunctions, should bear in mind that some infringement cases nowadays are brought by firms that “use patents not as a basis for producing and selling goods but, instead, primarily for obtaining licensing fees.”¹³⁵

In *Commil USA, LLC v. Cisco Systems, Inc.*, the Court observed in passing that “[s]ome companies may use patents as a sword to go after defendants for money, even when their claims are frivolous.”¹³⁶ Quoting the FTC’s testimony to Congress, the Court added that frivolous claims of infringement are often made through demand letters, which “may be sent very broadly and without prior investigation, may assert vague claims of infringement, and may be designed to obtain payments that are based more on the costs of defending litigation than on the merit of the patent claims,” and that such behavior can impose a “harmful tax on innovation.”¹³⁷ Recognizing the specter of frivolous claims, the Court reaffirmed the responsibility and authority of trial courts to impose appropriate sanctions on frivolous claims through the use of Rule 11 of the Federal Rules of Civil Procedure and the Patent Act’s attorney fee statute, 35 U.S.C. § 285.¹³⁸

Moreover, the fact that some PAEs may send abusive demand letters to defendant companies calls for the careful application of enhanced damages under 35 U.S.C. § 284, to ensure that the statute targets

¹³⁴ *eBay Inc. v. MercExchange, LLC*, 547 U.S. 388 (2006).

¹³⁵ *Id.* at 396 (Kennedy, J., concurring) (citing FTC PROMOTE INNOVATION REPORT, *supra* note 32, at ch. 3, at 38–39) (noting that in such cases, the plaintiffs may be using the threat of an injunction as “a bargaining tool to charge exorbitant fees to companies that seek to buy licenses to practice the patent”).

¹³⁶ *Commil USA, LLC v. Cisco Sys., Inc.*, 135 S. Ct. 1920, 1930 (2015).

¹³⁷ *Id.* (quoting H.R. ___, *a Bill to Enhance Federal and State Enforcement of Fraudulent Patent Demand Letters: Hearing Before the Subcomm. on Commerce, Mfg. & Trade of the H. Comm. on Energy & Commerce*, 113th Cong. 19 (2014) (statement of Lois Greisman, Assoc. Dir., Bureau of Consumer Protection, Fed. Trade Comm’n)).

¹³⁸ *Id.*

only egregious misconduct, as Justice Breyer observed in his concurrence in *Halo Electronics, Inc. v. Pulse Electronics, Inc.*¹³⁹ Unchecked by the courts, the threat of treble damages can cause accused infringers to settle, even if their activities do not violate the patent laws.¹⁴⁰

The History of the FTC's PAE Study

In September 2014, the Commission began a market study focused on PAE acquisition, litigation, and licensing practices. The study aimed to provide a more complete picture of how PAEs are structured and organized, how they acquire and assert patents, how they license their patents, and whether they facilitate patent monetization for inventors. This report sets forth the results of that study.

The PAE study was motivated in part by the Commission's longstanding and significant interest and expertise in studying legal and policy issues at the intersection of antitrust and intellectual property. In 2003, the FTC issued a report focused on improving patent quality to strike an appropriate balance between the patent grant's exclusive rights and the competitive forces that incentivize firms to produce new products and services.¹⁴¹ Subsequently, in 2007, the FTC and the DOJ Antitrust Division jointly issued a report that addressed the importance of considering the benefits of patent rights in antitrust analysis.¹⁴² More generally, Commissioners and FTC staff have provided testimony before Congress, filed comments with the USPTO and the U.S. International Trade Commission (ITC), and filed *amicus* briefs regarding competition aspects of patent policy and enforcement.

The PAE study also was prompted by the Commission's developing interest in learning more about PAE activity. The Commission discussed the emergence of PAE business models in its 2011 Report, *The Evolving IP Marketplace: Aligning Patent Notice and Remedies with Competition*.¹⁴³ There we recognized that reported increases in PAE activity in the information technology (IT) industry

¹³⁹ *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 136 S. Ct. 1923, 1936–38 (2016) (Breyer, J., concurring).

¹⁴⁰ *Id.* at 296.

¹⁴¹ FTC PROMOTE INNOVATION REPORT, *supra* note 32.

¹⁴² FTC/DOJ PROMOTING INNOVATION AND COMPETITION REPORT, *supra* note 32.

¹⁴³ FTC EVOLVING IP MARKETPLACE REPORT, *supra* note 1.

“amplified concerns about the effects of *ex post* patent transactions on innovation and competition.”¹⁴⁴ We recommended improving the notice function of patents so that it would be easier for implementers either to begin licensing discussions before commercialization, or to design around the patented technology.¹⁴⁵

On December 10, 2012, the FTC and DOJ jointly sponsored a public workshop to explore the impact of PAE activities on innovation and competition, and the implications, if any, for antitrust enforcement and policy.¹⁴⁶ The agencies also solicited and received public comments in connection with the workshop.¹⁴⁷ Although workshop panelists and commenters identified potential harms and benefits of PAE activity, they noted a lack of empirical data in this area, and recommended that the FTC use its statutory authority under Section 6(b) of the FTC Act to collect confidential business information on PAE acquisition, litigation, and licensing practices.¹⁴⁸ Senator Amy Klobuchar and Representative Daniel Lipinski likewise called on the Commission to conduct a Section 6(b) study of PAE activity.¹⁴⁹

¹⁴⁴ *Id.* at 8–9 (“Some argue that PAEs encourage innovation by compensating inventors, but this argument ignores the fact that invention is only the first step in a long process of innovation. Even if PAEs arguably encourage invention, they can deter innovation by raising costs and risks without making a technological contribution.”).

¹⁴⁵ *Id.* at 9.

¹⁴⁶ Press Release, Fed. Trade Comm’n, Federal Trade Commission, Department of Justice to Hold Workshop on Patent Assertion Entity Activities (Dec. 7, 2012), <https://www.ftc.gov/news-events/press-releases/2012/12/federal-trade-commission-department-justice-hold-workshop-patent>. The workshop was held on December 10, 2012. *See Patent Assertion Entity Activities Workshop*, FED. TRADE COMM’N, <https://www.ftc.gov/news-events/events-calendar/2012/12/patent-assertion-entity-activities-workshop>.

¹⁴⁷ *Public Workshop: Patent Assertion Entity Activities*, U.S. DEPT. OF JUSTICE, <https://www.justice.gov/atr/events/public-workshop-patent-assertion-entity-activities#comments> (the workshop webpage contains a list of all 68 public comments).

¹⁴⁸ *See* Transcript of PAE Activities Workshop, Fed. Trade Comm’n & U.S. Dep’t of Justice, at 33 (Dec. 10, 2012), https://www.ftc.gov/sites/default/files/documents/public_events/Patent%20Assertion%20Entity%20Activities%20Workshop%20/pae_transcript.pdf (testimony of Prof. Carl Shapiro) (“Now let’s look at, if we’re going to try to figure out, follow the money, this is where there’s a good amount of empirical work, and more needs to be done.”); *id.* at 113 (testimony of Prof. Tim Simcoe) (“So, in terms of comments, I liked Adam’s point about the importance of data and empirical evidence in this entire debate.”); *id.* at 117 (testimony of Fiona Scott Morton, Deputy Assistant Attorney Gen., U.S. Dept. of Justice) (“But what I’m hearing a little bit here is a call for empirical work. And a couple of points that came up on the panel, I think, were asserted without really us having the data to do that.”); *id.* at 131–32 (testimony of Deputy Dir. Howard Shelanski, Bureau of Econ.) (“I’ll reemphasize I think what to me are critical question, which is the empirical data, which will help us understand the magnitude of these effects and the value of thinking about these problems holistically, and trying to access the net benefits versus costs in a particular competitive context.”); *id.* at 141 (testimony of Prof. David Schwartz) (“And there are few, if any, empirical comparisons, broad comparisons of PAE litigation in general, and other patent litigation.”); *id.* at 149 (testimony of Brad Burnham) (“So what I want to do here is say that as we talk about doing all of this research, I really believe in empirical evidence, and I really think we should do it.”). *See also* Jonathan H. Ashtor, Michael J. Mazzeo & Samantha Zyontz, *Patents at Issue: The Data Behind the Patent Troll Debate*, 21 GEO. MASON L. REV. 957, 977 (2014)

In September 2013, the Commission began the formal process of obtaining authorization to conduct a Section 6(b) study. As required by the Paperwork Reduction Act and implementing regulations of the Office of Management and Budget (OMB),¹⁵⁰ the Commission published a Federal Register Notice that included, among other things, the Special Orders under Section 6(b) of the FTC Act¹⁵¹ that the Commission planned to serve on PAEs, manufacturers, and NPEs. Commenters on the Commission's first Federal Register Notice announcing the study likewise stressed the need for Commission research in this area.¹⁵²

Based on public comments received in response to the September 2013 Federal Register Notice, the FTC amended the information requests that would be attached to the Special Orders. In May 2014, it published a second Federal Register Notice requesting public comments, and announced its official intention to seek OMB approval.¹⁵³ On August 8, 2014, the FTC obtained the required approval, and on September 15, 2014, it began serving the Special Orders on PAE, NPE, and manufacturer respondents selected for inclusion in the study.

("This Article does not address settled cases directly, or demand letters and licensing arrangements that do not involve litigation, and it is possible that PAEs significantly differ from practicing entities when it comes to out-of-court assertion practices.").

¹⁴⁹ Letter from Senator Amy Klobuchar, U.S. Senate, to Edith Ramirez, Chairwoman; Julie Brill, Commissioner; Maureen K. Ohlhausen, Commissioner; and Joshua D. Wright, Commissioner, Fed. Trade Comm'n (June 24, 2013), <http://www.klobuchar.senate.gov/public/2013/6/klobuchar-calls-on-administration-to-address-concerns-over-patent-trolls-that-stifle-innovation-and-hurt-the-economy>; Letter from Representative Daniel Lipinski, U.S. House of Representatives, to Edith Ramirez, Chairwoman, Fed. Trade Comm'n (June 25, 2013), http://lipinski.house.gov/uploads/PAE_letter.pdf.

¹⁵⁰ The Commission was required to obtain OMB approval before it could begin the study because the proposed number of special orders triggered the requirements of the Paperwork Reduction Act of 1995, 44 U.S.C. ch. 35, as amended.

¹⁵¹ 15 U.S.C. § 46(b) (2012); Fed. Trade Comm'n, Agency Information Collection Activities; Proposed Collection; Comment Request, 78 Fed. Reg. 61,352 (Oct. 3, 2013).

¹⁵² See List of Public Comments regarding PAE Study, FED. TRADE COMM'N, <https://www.ftc.gov/policy/public-comments/initiative-501>. The Government Accountability Office (GAO) has also recognized deficiencies in the existing record of non-public PAE activity. First, although GAO reported that patent assertions frequently do not result in litigation, it could not obtain reliable data on such assertions. Second, GAO could not collect information on litigation costs from court records or the sample data, nor obtain information on the settlements that resolve most cases. 2013 GAO REPORT, *supra* note 2, at 23–25. (The GAO used the term "patent monetization entity" (PME) to describe an entity that "buy[s] patents from others for the purpose of asserting them for profit." *Id.* at 2. This definition is nearly equivalent to the FTC's definition of a PAE).

¹⁵³ Fed. Trade Comm'n, Agency Information Collection Activities; Submission for OMB Review; Comment Request, 79 Fed. Reg. 28,715 (May 19, 2014).

Study Scope and Methodology

The FTC study differs from prior studies in a meaningful way. As described below, the FTC had access to new data pertaining to non-public assertion behavior that was not available to other researchers, who instead focused on publicly available litigation data. The majority of PAE litigation settles, and settlement agreements frequently include non-disclosure agreements (NDAs) that prohibit parties from disclosing settlement terms to third parties. Licenses negotiated independently of litigation likewise commonly contain non-disclosure provisions. NDAs, however, do not prevent legally mandated disclosure of information to the government. Consequently, by using its Section 6(b) authority to compel information from respondents, the FTC harvested a wealth of non-public settlement, license, and business information that other researchers cannot collect. This information allowed the FTC to draw new and unique insights regarding PAE business models, assertion behavior, and patent holdings.

We wanted to study the most economically important PAEs while also including PAEs of different sizes to understand how assertion behavior may vary across firm size. To meet both of these goals, the FTC designed a sampling algorithm to include the firms that accounted for a larger proportion of assertion behavior while also including different sized firms. Because there is no public registry of PAEs, the FTC developed a methodology for selecting PAE respondents informed by its own research and meetings with academics, businesses, trade associations, and other government representatives.¹⁵⁴

The Commission used two publicly available measures as a proxy for firm size: the estimated number of patents held by a PAE and the estimated number of defendants sued by a PAE.¹⁵⁵ These two measures

¹⁵⁴ See Fed. Trade Comm'n, *Supporting Statement for a Paperwork Reduction Act Submission to OMB, FTC Study of Patent Assertion Entities, Part B*, REGINFO.GOV, <http://www.reginfo.gov/public/do/DownloadDocument?objectID=47563401> and *infra*, Appendix F (describing the FTC's selection methodology in more detail). See also Fed. Trade Comm'n, *Supporting Statement for a Paperwork Reduction Act Submission to OMB, FTC Study of Patent Assertion Entities, Part A*, REGINFO.GOV, <http://www.reginfo.gov/public/do/DownloadDocument?objectID=47563301> and *infra*, Appendix E. The FTC's sampling method roughly followed a "cut-off sample" design, commonly used by Federal agencies when studying "businesses or other highly skewed populations." OFF. INF. & REG. AFF, OFF. MANAGEMENT & BUDGET, QUESTIONS & ANSWERS WHEN DESIGNING SURVEYS FOR INFORMATION COLLECTIONS 26 (2006), www.whitehouse.gov/sites/default/files/omb/inforeg/pmc_survey_guidance_2006.pdf.

¹⁵⁵ While revenue or number of employees is typically used as the measure of firm size, this information was not generally publicly available for PAEs. The FTC purchased the measures of estimated patent holdings and the estimated number of defendants sued from two commercial data collection firms: Patent Freedom and RPX, which use public sources of information to determine if a firm is a PAE. They also estimate the patent holdings and litigation behavior of firms engaged in patent litigation. The FTC obtained data from RPX and Patent Freedom prior to RPX's acquisition of Patent Freedom in June 2014.

were intended to generate a sample that included both PAEs that litigated frequently but did not hold many patents and PAEs that held large patent portfolios but did not rely on litigation to assert their patents. The FTC then combined these two estimates for each firm into a score that was a proxy for firm size. Using the proxy score, the Commission used stratified and weighted sampling to collect the target numbers of PAEs for each of three strata defined by the proxy score values: small, medium, and large. The weighted sampling increased the likelihood that the larger PAEs within each size strata, which presumably were the most economically significant firms within their strata, would be chosen. After the initial selection was complete, FTC staff researched court dockets and state records, among other sources, to determine whether each firm on the target list met the FTC's definition of a PAE.

Using its selection methodology, the FTC sent information requests to PAEs of different sizes (as measured by estimated patent holdings and litigations). The requests sought information on: the composition of PAE portfolios (information such as the age and field of patents); whether any patents were subject to a licensing commitment to a standard setting organization; and the costs of acquiring patents, as well as whether the PAEs share the economic value of their portfolios with other entities. The requests also sought information about assertion activity, such as licensing and litigation activity, and the costs of assertion.¹⁵⁶ The companion Wireless Case Study compared how PAEs, manufacturing firms, and NPEs assert their patents in the wireless chipset sector.¹⁵⁷

The FTC served 28 Special Orders to firms that its research indicated operated as PAEs.¹⁵⁸ The FTC then allowed three pairs of these 28 firms to submit a joint response to their information requests because their activities were closely related. In addition, the FTC determined that one respondent was not a PAE and that two respondents had wound down their businesses to such an extent that they no longer had reportable information. As a result, only 22 firms¹⁵⁹ responded to the FTC's Special Orders; the FTC calls this category of responding firms "Responding PAEs."¹⁶⁰

¹⁵⁶ Appendix C: PAE Special Order.

¹⁵⁷ Appendix D: Wireless Case Study Special Order.

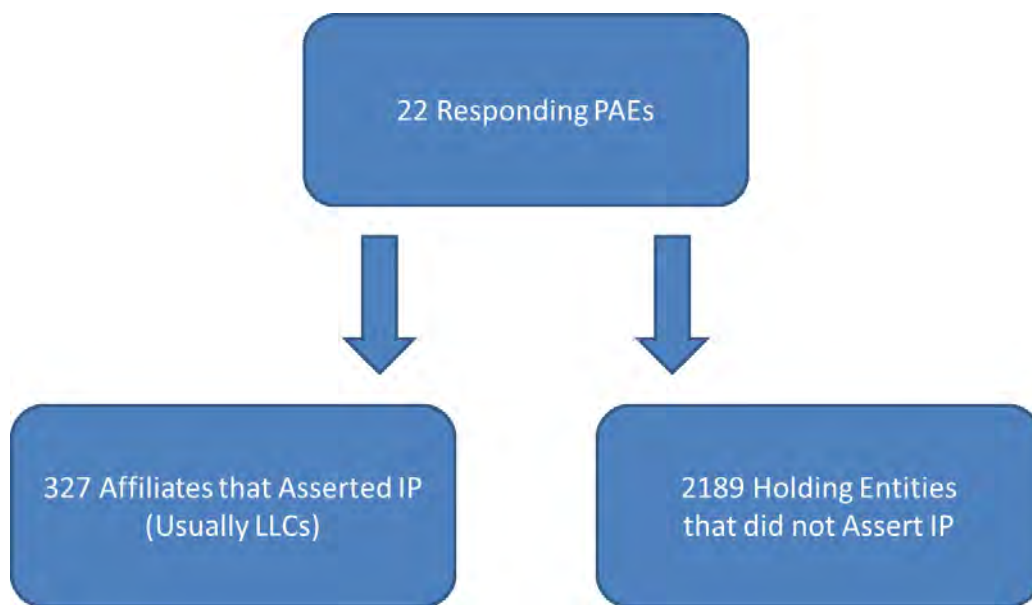
¹⁵⁸ See Appendix B: Methodology.

¹⁵⁹ Four of these firms were observed to be Portfolio PAEs and the remaining 18 firms were observed to be Litigation PAEs.

¹⁶⁰ See Appendix A: Glossary of Frequently Used Terms.

With the information requests attached to the Special Orders, the FTC collected data regarding PAE organizational structure, including the identity of parents, subsidiaries, and related firms. Specifically, Specification B.2 required Responding PAEs to identify “all parents, wholly or partially owned subsidiaries, incorporated and unincorporated divisions, affiliates, branches, joint ventures, franchises, operations under assumed names, websites, or other Person(s) over which the Firm exercises or has exercised supervision or control since January 1, 2009.”¹⁶¹ Responding PAEs identified more than 2,500 entities in response to this question. Not all of those entities, however, engaged in assertion behavior. Of the additional entities identified in response to Specification B.2, 327 sent demands, sued for patent infringement, or licensed patents. The FTC refers to these 327 additional firms as “Affiliates.” The FTC refers to the combined group of Responding PAEs and their Affiliates as “Study PAEs” because they are the PAEs for which this study has collected and presented data relating to assertion behavior. Figure 1.1 identifies the relationship between the 22 Responding PAEs that received the FTC’s information requests and the additional entities that the FTC identified during the study.

Figure 1.1: Relationships Between Responding PAEs and Additional Identified Firms¹⁶²



¹⁶¹ Appendix C: PAE Special Order, Specification B.2.

¹⁶² The Report discusses Affiliates in Chapters 2, 3, and 4. It discusses Holding Entities in Chapter 5.

The FTC's study has two parts. The first part, and the primary focus of the study, consists of a broad descriptive examination of PAE business models. The second part is a narrowly focused comparative case study of patent assertion activity in the wireless chipset sector by PAEs, Wireless Manufacturers, and NPEs. For this Wireless Case Study, the FTC sent Special Orders to ten Wireless Manufacturers and six NPEs that were active in the wireless chipset sector. Two Wireless Manufacturers did not have sufficient reportable information. The FTC allowed two NPE firms to submit a joint response because their activities were closely related. As a result, this report presents data on eight Wireless Manufacturers and five NPEs that conducted business in the wireless chipset sector.

Organization of the Report

Chapter 2 of the Report addresses PAE organization and structure and describes our key observation of two distinct PAE business models for generating revenue through patent assertion: the Portfolio PAE model and the Litigation PAE model. Chapter 3 describes PAE assertion behavior, including sending demands, filing patent infringement lawsuits, and licensing patents. Chapter 4 presents the Wireless Case Study and concludes that Litigation PAE assertion behavior and Wireless Manufacturer assertion behavior, in particular, are not alike. Finally, Chapter 5 addresses PAE patent holdings and highlights that Study PAEs focused on acquiring and asserting Information and Communication Technology (ICT) patents.

Chapter 2: PAE Organization and Structure

Introduction

This chapter describes how Study PAEs acquired and asserted patents. While prior research has focused on the harms and efficiencies of the business model, less is known about the PAE activities described in this chapter because these activities often are not in public view. The FTC observed far more organizational homogeneity among Study PAEs than expected. The FTC’s 2011 report, for example, described “many types of actors” and “evolving” business models.¹⁶³ Upon close examination of the more than 300 Study PAEs that engaged in assertion behavior, however, the FTC found that the observed PAE business models were more straightforward and homogeneous than previously thought. Using the data collected in this study, the first section of this chapter describes the Portfolio PAE and Litigation PAE business models. The second section explains how significant numbers of Responding PAEs created shell companies to organize their patent holdings and assertion behavior, and the third section addresses transparency issues that arise from PAE business models.

Two Models of PAE Behavior: Portfolio PAEs and Litigation PAEs

In conducting business, a PAE generally must acquire patents, compensate the prior patent owners, organize patent holdings, retain and compensate lawyers, and generate revenue. Study PAEs performed these functions according to two distinct business models:

- **Portfolio PAEs:** Portfolio PAEs negotiated licenses covering large portfolios, often containing hundreds or thousands of patents, frequently without first suing the alleged infringer. The value of these licenses was typically in the millions of dollars. Although Portfolio PAEs accounted for only 9% of the reported licenses in the study, they generated 80% of the reported revenue, or approximately \$3.2 billion. Portfolio PAEs typically funded their initial patent acquisitions through capital raised from investors, including institutional investors or manufacturing firms.

¹⁶³ FTC EVOLVING IP MARKETPLACE REPORT, *supra* note 1, at 62–63 (citing testimony describing 17 different business models).

- **Litigation PAEs:** Litigation PAEs typically sued potential licensees and settled shortly afterward by entering into license agreements with defendants covering small portfolios, often containing fewer than ten patents.¹⁶⁴ The licenses typically yielded total royalties of less than \$300,000. According to one estimate, \$300,000 approximates the lower bound of early-stage litigation costs of defending a patent infringement suit.¹⁶⁵ Given the relatively low dollar amounts of the licenses, the behavior of Litigation PAEs is consistent with nuisance litigation.¹⁶⁶

For each separate patent portfolio that they acquired, Litigation PAEs characteristically created a new affiliate entity, which often held ten patents or less. They generally operated with little or no working capital and relied on agreements to share future revenue with patent sellers to fund their businesses. Litigation PAEs filed 96% of the cases in the study and accounted for 91% of the reported licenses, but only 20% of the reported revenue, or approximately \$800 million.

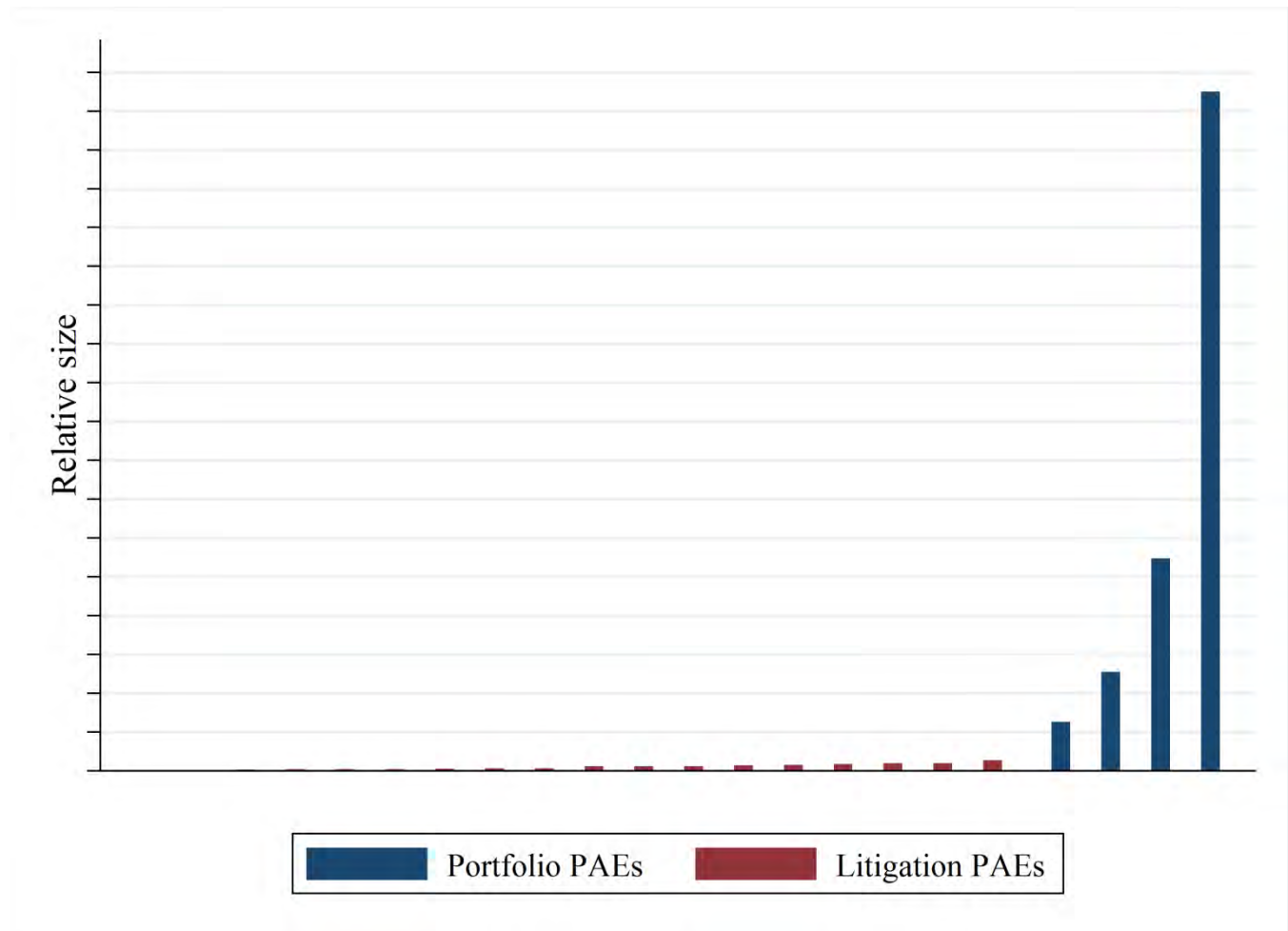
¹⁶⁴ Sixty-six percent of Litigation PAE cases settled within 12 months. To provide context, one recent study found that, between 2010 and 2014, the median time to trial for patent lawsuits was 29 months. PRICEWATERHOUSECOOPERS, 2015 PATENT LITIGATION STUDY: A CHANGE IN PATENTEE FORTUNES 14 (2015), <https://www.pwc.com/us/en/forensic-services/publications/assets/2015-pwc-patent-litigation-study.pdf> [hereinafter 2015 PWC PATENT LITIGATION STUDY]. While cases that proceed to trial are far fewer than those that settle, the 29-month value provides a benchmark for the approximate length of time that a case would take if it did not settle. Note that, as used in this report, “Case” means the unit of observation defined as a matter between a particular plaintiff and a particular defendant involving a particular set of asserted patents. See Appendix A: Glossary of Frequently Used Terms.

¹⁶⁵ The American Intellectual Property Law Association (AIPLA), which periodically surveys the costs of patent litigation, recently reported that the cost of defending an NPE patent litigation through the end of discovery, which litigation budgets typically use as a milestone for filing any summary judgment motions, is between \$300,000 and \$2,500,000, depending on the amount in controversy. AIPLA 2013 REPORT OF THE ECONOMIC SURVEY, *supra* note 7, at 35. Although there are more recent AIPLA reports, the FTC uses the 2013 survey here because 2013 is the last full year for which it collected data.

¹⁶⁶ William H.J. Hubbard, *Sinking Costs to Force or Deter Settlement*, 10 J.L. ECON. & ORG. 1093, 1093–94 (2015) (“The notion is that the prospect of expensive litigation drives the defendant to pay a settlement despite knowing that, were the case to go to trial, the defendant would probably or certainly win.”); David Rosenberg & Steven Shavell, *A Solution to the Problem of Nuisance Suits: The Option to Have the Court Bar Settlement*, 26 INT’L REV. L. & ECON. 42, 42 (2006) (“By a nuisance suit we refer to a legal action in which the plaintiff’s case is sufficiently weak that he would be unwilling to pursue it to trial.”); David Rosenberg & Steven A. Shavell, *A Model in Which Suits Are Brought for Their Nuisance Value*, 5 INT’L REV. L. & ECON. 3, 3 (1985) (“By a suit brought for its nuisance value, we mean a suit in which the plaintiff is able to obtain a positive settlement from the defendant even though the defendant knows the plaintiff’s case is sufficiently weak that he would be unwilling or unlikely actually to pursue his case to trial.”).

To further illustrate the differences in the size of patent license royalties between Litigation and Portfolio PAEs, Figure 2.1 shows the relative size of the median patent royalty license revenue per license separately for each Responding PAE.¹⁶⁷ The smallest median patent royalty earned by a Portfolio PAE was 4.5 times larger than the largest median patent royalty earned by a Litigation PAE.

Figure 2.1: Relative Size of the Median Patent Royalty Per License



Note: Sample restricted to the 2,364 licenses reporting positive royalty payments.

Portfolio PAEs accounted for the overwhelming majority of reported license revenue because their licenses generated total royalties that were much larger, on average, than those of Litigation PAE

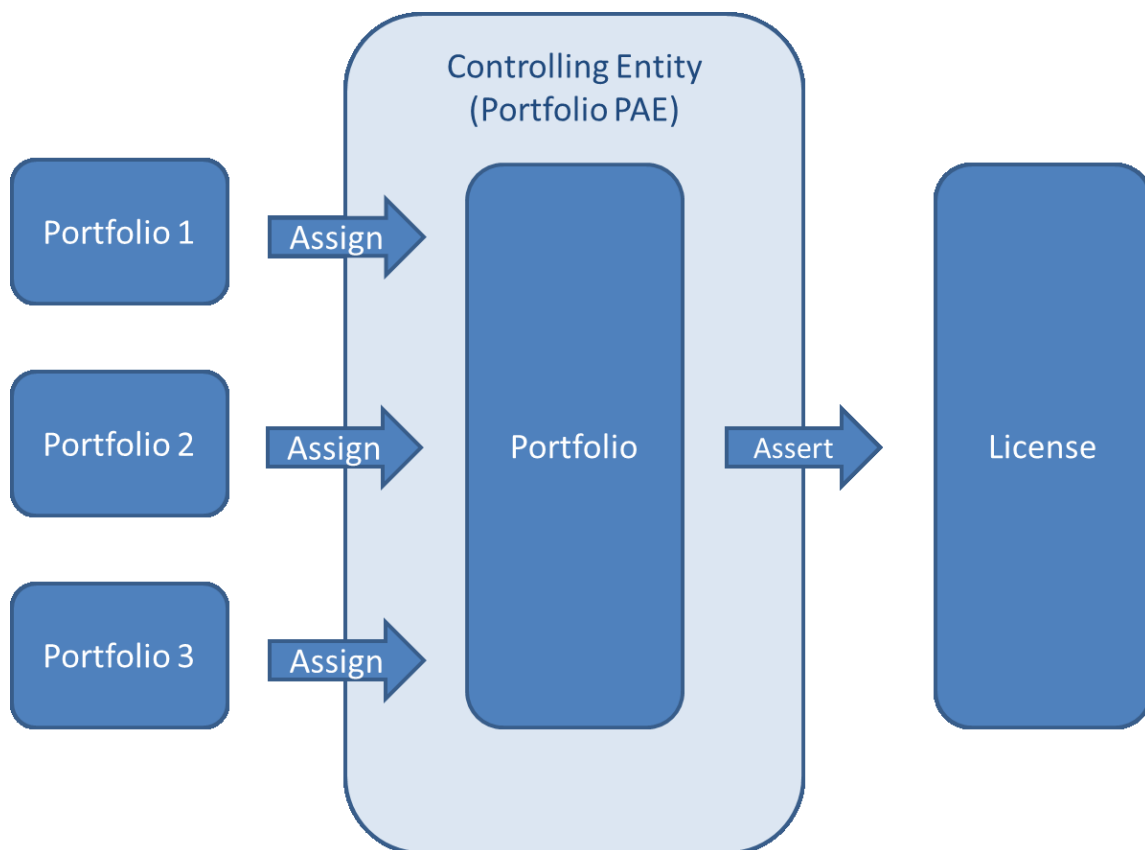
¹⁶⁷ The median (or 50th percentile of a distribution) is defined as the midpoint of a distribution; that is, 50% of the license royalties that a Responding PAE received are greater than the median royalty and 50% are less than the median royalty. To anonymize the information from any Responding PAE, Figure 2.1 does not contain labels describing the magnitude of the license royalties.

licenses. There was little overlap in the royalties generated by Litigation PAE and Portfolio PAE licenses. Seventy-seven percent of Litigation PAE licenses generated royalties of less than \$300,000 and 94% of the Litigation PAE licenses generated royalties of less than \$1 million. By contrast, 65% of Portfolio PAE licenses generated royalties of more than \$1 million per license and 10% of Portfolio PAE licenses generated royalties of greater than \$50 million.

Portfolio PAEs

Portfolio PAEs most closely resembled the licensing arms of manufacturing firms; they were highly capitalized and often raised money from investors that included both investment funds and manufacturing firms. Typically, these investors received a share of the Portfolio PAE's future revenue and a license to the Portfolio PAE's patents. Figure 2.2 shows the acquisition and assertion model for Portfolio PAEs.

Figure 2.2: Portfolio PAE Business Model



Portfolio PAEs typically conducted business in the following manner. First, they acquired portfolios of patents. Portfolio PAEs frequently acquired patents from manufacturing firms by making large up-front payments to the owner. Some Portfolio PAEs acquired hundreds or thousands of patents in individual transactions, often purchasing these patents from manufacturing firms. Other Portfolio PAEs acquired smaller numbers of patents per transaction and aggregated them into larger portfolios. Regardless of acquisition model, Portfolio PAEs then organized acquired patents into one or more portfolios, each containing hundreds if not thousands of patents and offered these portfolios for licensing.¹⁶⁸

Portfolio PAEs generally reached licensing commitments without bringing litigation against a potential licensee: they executed 71% of their licenses without litigation. Portfolio PAEs often sent demands to initiate these license negotiations.¹⁶⁹ They employed dedicated management and licensing executives, who frequently had prior licensing experience. When Portfolio PAEs did file suit, 76% of their cases involved five to ten patents and 74% of their cases lasted more than a year. Portfolio PAEs typically retained counsel paid on an hourly basis, when needed.

In lieu of litigation, licensing executives hired by Portfolio PAEs typically began negotiations by reaching out to a large network of contacts and offering a portfolio license. Portfolio PAE licensing executives typically contacted a specific person in their network, with whom they appeared to have had an introduction or a preexisting relationship.

Overall, Portfolio PAE licenses generated high revenues relative to Litigation PAE licenses. Although Portfolio PAEs accounted for 9% of all licenses in the study, these licenses generated 80% of all revenue reported in the study. Some Portfolio PAEs also sold patents to Litigation PAEs in exchange for a share of the revenues that the acquiring Litigation PAE might subsequently obtain through litigation and settlement. The Portfolio PAE model may serve as a mechanism for shifting the financial risk of assertion activity to individuals or entities more able and willing to bear such risk, which may be more attractive to some patent owners than asserting the patents themselves. By raising capital from investors and purchasing patents with a large up-front payment, the Portfolio PAE provides the patent seller with

¹⁶⁸ In some instances, the Portfolio PAE created an affiliate entity to hold and assert the portfolio. Thirty Affiliates were related to Portfolio PAEs.

¹⁶⁹ Each Portfolio PAE reported sending demands to prospective licensees.

guaranteed revenue and zero risk. The investors, who may have greater risk tolerance, then stand to enjoy the financial upside of successful assertion activities. In addition, manufacturing firms may transfer patents to Portfolio PAEs for assertion because Portfolio PAEs may enjoy lower costs, lack of reputational concerns, or licensing experience owing to their specialization in patent assertion.

Additionally, for manufacturing firms that are potential investors, the Portfolio PAE model also offers an extra upside benefit, a chance not only to be an investor but also to avoid becoming a target of assertion activity. Several PAEs adopted a practice whereby investors acquired a license to the patents in which they invested, in addition to an interest in revenue generated by future assertion against third parties. In such cases, investors obtained assurances that the patents would not be asserted against them, as well as the opportunity for potential financial gain.

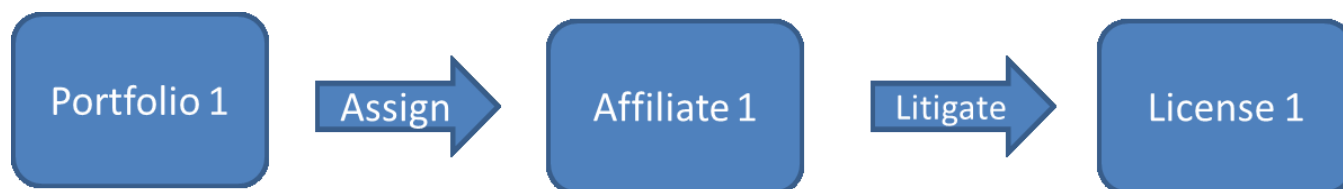
Litigation PAEs

The Litigation PAE business model frequently employed one or more affiliate entities, usually set up as limited liability companies (LLCs), each created to acquire and assert a small portfolio of patents, without bundling or aggregating acquired patents into larger portfolios.¹⁷⁰ Some, but not all, Litigation PAEs sent demand letters. Regardless of whether they sent demand letters, Litigation PAEs almost always sued potential licensees in district court before beginning license negotiations.¹⁷¹ These patent infringement suits usually settled quickly, typically with a lump-sum payment of less than \$300,000.

Litigation PAEs tended to be thinly capitalized. Many had between one and three individual owners, often with no other employees and no offices outside of their owners' homes. In fact, several Litigation PAEs were simply individual entrepreneurs who relied entirely on outside attorneys and professionals to maintain records regarding their assertion activity. Many firms did not have sophisticated recordkeeping. Figure 2.3 shows the acquisition and assertion model for Litigation PAEs from the perspective of a single portfolio acquisition.

¹⁷⁰ See *supra* note 168 (discussing Portfolio PAEs and Affiliates). While Portfolio PAEs and Litigation PAEs both created and used Affiliates, Portfolio PAEs assigned aggregated portfolios to Affiliates, while as described here Litigation PAEs and their Affiliates acquired and asserted small portfolios without aggregation. In all, 297 Affiliates were related to Litigation PAEs.

¹⁷¹ Under the category of Litigation PAEs, more than 40% of Responding PAEs reported that they, or their Affiliates, never sent demand letters.

Figure 2.3: Litigation PAE Business Model

Litigation PAEs typically conducted business in the following manner. First, the Litigation PAE established an Affiliate, shown here as Affiliate 1, typically a LLC.¹⁷² Sometimes the relationship between the controlling Litigation PAE and the Affiliate was obvious. More often, however, the relationship was not clear from comparing the names of the Responding Litigation PAE and its Affiliate.

Affiliates were typically the entities most visible to the public. As the legal patent owners, or the exclusive licensees, they served as the named plaintiffs in litigation and as the licensors on executed licenses. In many cases, their names also were recorded in USPTO records. While these firms existed as legally distinct entities, in most cases, they existed only on paper, without any physical office or full-time employees. Once their role in patent assertion was complete, many Affiliates became inactive.

After creating an Affiliate, a Litigation PAE would generally acquire a small portfolio of patents, shown in Figure 2.3 as Portfolio 1. The Affiliate would hold only the small portfolio of patents acquired by the Litigation PAE in that single transaction. Litigation PAEs did not aggregate patents acquired through multiple transactions into individual Affiliates.

With one exception,¹⁷³ each Litigation PAE reported the use of revenue sharing in at least some of its patent acquisition agreements.¹⁷⁴ Approximately half of the Litigation PAEs used revenue-sharing

¹⁷² In some cases, one LLC would serve as the patent acquisition vehicle for a PAE and then assign acquired patents to new related LLCs, which would in turn hold and assert them. That practice was particularly common with Litigation PAEs that comprised many LLCs.

¹⁷³ The one exception is a Litigation PAE that reported paying no monetary consideration for its patents, indicating instead that its owners obtained the patents in exchange for services they had provided to the patent seller.

¹⁷⁴ The FTC asked for a variety of information regarding both patent acquisition and counsel retention agreements as well as revenue sharing. The Responding PAEs accounted for the payments made pursuant to these agreements in a variety of ways. Some viewed these agreements as a cost of doing business, others viewed them as revenue sharing, and others identified them as a third-party economic interest in their patents. This reflected the variation in arrangements and governance styles used by the parties to contract for these inputs. As a result, it was not possible to compare one Responding PAE's responses

agreements exclusively. These agreements kept many patent sellers engaged in the PAEs' assertion activity. In fact, some Litigation PAEs referred to patent sellers as their partners or clients. Under some agreements, patent sellers agreed to assist with litigation, such as by making inventors available to testify, while in other agreements, the patent sellers retained authority to control certain aspects of the litigation or licensing activity.

Litigation PAEs employed a variety of contractual terms to share future revenue with patent sellers. Some agreements shared a percentage of gross proceeds, i.e., the payments received from licensees. Many agreements, however, provided a percentage share of net proceeds after deducting costs. These costs often included both contingency fee payments to counsel as well as other out-of-pocket litigation expenses, such as expert witness fees.

Of the 18 Litigation PAEs in the study, nine reported that all of their patents were encumbered by some form of a third-party economic interest and the remaining nine firms reported that some of their patents had such an encumbrance. In addition, six of the Litigation PAEs reported acquiring the rights to some patents through an exclusive license; in those cases, the patent owner retained ownership of the patents but granted the PAE enough rights to enforce the patents on its own against potential infringers.

Sometimes, the Litigation PAEs sent demand letters. However, the FTC did not observe Study PAEs successfully generating low-revenue licenses from demands alone, i.e., without also suing the target: over 90% of the patent licenses granted by Litigation PAEs followed a lawsuit against the licensee. Litigation PAEs entered into licenses with defendants in 76% of the reported cases that terminated in the study period. Most of these cases settled within a year of filing and 77% of reported Litigation PAE licenses were for less than \$300,000.

Litigation PAEs reported retaining outside litigation counsel on a contingency fee basis. Often, these attorneys would receive a percentage share of either gross or net proceeds from litigation, including proceeds from licenses with defendants. Contingency fee agreements frequently had a sliding scale for compensation: counsel would earn a smaller percentage of overall proceeds if the litigation ended in an early settlement, and the percentage owed would increase the longer it took before a settlement was

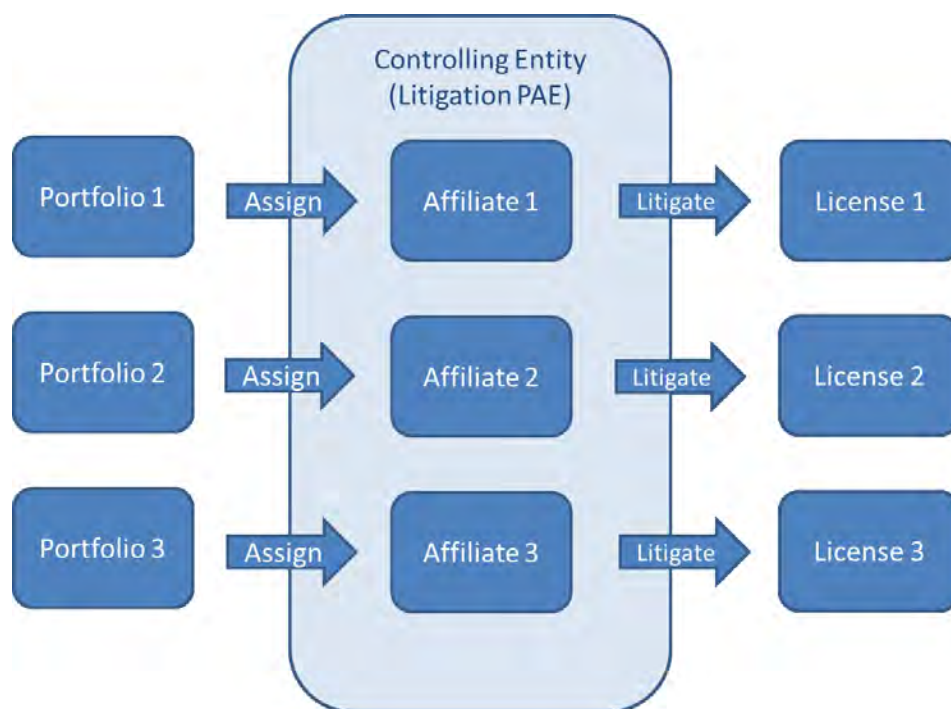
to others but the agreements produced by the respondents nevertheless reflected the importance of revenue sharing to the Litigation PAE business model.

reached. Many Litigation PAEs also retained multiple law firms to work on their behalf (i.e., national counsel, local counsel, and in some cases specialized attorneys to counsel on licensing negotiations and strategy) and, in these cases, the retainer agreements also established the relative priority of each firm's contingency claim.¹⁷⁵

Some Litigation PAEs Comprised Multiple Affiliates

Some Litigation PAEs consisted of only one legal entity. Several single-LLC Litigation PAEs appeared to be organized as investment opportunities for individuals who learned of a patent portfolio and acquired it as speculation. Other Litigation PAEs had multiple Affiliates. Multi-Affiliate Litigation PAEs organized themselves by creating new Affiliates for each acquired portfolio, as shown in Figure 2.4.

Figure 2.4: Multiple Affiliate Litigation PAE Business Model



¹⁷⁵ Contingency fee agreements also had varied treatment of out-of-pocket costs and whether the law firm would be compensated from gross recoveries or recoveries net those costs. While most agreements provided that the law firm would be compensated with a share of either judgments or settlement payments, there also was variation regarding whether the law firm would also be compensated from licensing of patents held by the Litigation PAE that were not asserted in litigation. In addition to agreements with outside counsel, some Responding PAEs reported entering into revenue sharing agreements with other consultants or with investors.

Larger Litigation PAEs also used the Affiliate model, scaling up by creating more Affiliates to hold portfolios as they were acquired, instead of aggregating patents into larger portfolios. This structure may reflect how Litigation PAEs paid for the patents they acquired. As noted already, Litigation PAEs frequently entered into revenue sharing agreements with patent sellers, agreeing to pay the sellers a percentage of the revenues that the PAE would obtain through licensing as consideration for the patents. The use of separate LLCs to own and assert patents acquired from separate sellers would make it easier for PAEs to segregate revenue for sharing with each patent seller. Several Responding PAEs reported tracking their revenue sharing at the level of the Affiliate for this reason.

For Litigation PAEs, the controlling entity in Figure 2.4 was most frequently itself an LLC. In some cases, however, there was no single controlling entity, and the LLCs were instead a loose affiliation of firms that did not operate in a parent/subsidiary relationship with each other. They operated independently but shared common owners or investors. Controlling entities, if present, sometimes performed centralized business functions, including: (1) scouting for new patents to acquire; (2) vetting patents to select for acquisition; (3) providing technical assistance during assertion; (4) financing acquisition and assertion expenses; and (5) maintaining a public-facing website offering the firm's services to inventors and patent holders.¹⁷⁶

The identity of the controlling entity identified in Figure 2.4, and its relationship to other entities, further defined the Litigation PAE business model. In one sub-model, the controlling entity directed the patent acquisition and assertion, often operating as a repeat player, finding and contracting with different patent owners and asserting patents on their behalf. When an Affiliate was successful in its assertion behavior, the Affiliate's legal owners and shareholders retained significant revenue. Controlling entities using this model frequently operated websites advertising their services as patent brokers and intermediaries to small companies and lone inventors. In a second sub-model, a patent seller transferred its patents to the controlling entity while retaining significant control over how—and against whom—the PAE asserted and licensed patents.¹⁷⁷ PAEs using this model tended to transfer the majority of their

¹⁷⁶ Some firms noted that patent screening was an important aspect of their business model, and that they declined to acquire a majority of the patents that they reviewed.

¹⁷⁷ In this model, the patent seller retained control over assertion behavior through clauses in the patent acquisition or revenue sharing agreement.

licensing revenues to the patent sellers. In a third sub-model, a revenue sharing agreement with third parties appeared to allow those third parties to capture most of an Affiliate's revenue; in these cases, the Affiliate did not retain revenues for itself. Several such agreements provided that an investor or consultant to the PAE would receive a large share of revenues.

Litigation PAEs frequently employed contingency fee counsel. For some Litigation PAEs, the contingency fee agreements had the effect of distributing most of the proceeds from assertion to outside attorneys. Some Responding PAEs indicated to the FTC that their outside attorneys exercised considerable autonomy and discretion in identifying defendants and negotiating licenses. Alternatively, some Litigation PAEs had similar relationships with other types of outside consultants or advisors who received the majority of their proceeds in return for their services. In these cases, the Litigation PAE itself had little effective control over its own patent assertion activity. The residual proceeds retained by the PAE in such cases were often nominal, and the listed managers of the PAE had only a nominal role in the management of patent acquisition or assertion.

Transparency Issues with Multi-Affiliate Structures

As described above, the FTC observed significant variation in how multi-Affiliate Litigation PAEs organized their firms. Some multi-Affiliate Litigation PAEs adopted traditional parent-subsidary relationships between a single controlling entity and multiple affiliates. Other multi-Affiliate Litigation PAEs simply had common owners or investors that controlled each of the Affiliates. For the latter arrangements, there was no formal relationship between any of the LLCs; they all operated independently but happened to share common owners. This type of organizational structure would be less likely to be observed from publicly available data.

The multi-Affiliate model introduces two transparency issues. First, some PAEs may obscure the identity of related LLCs when negotiating with a prospective licensee. In other words, the licensor may not disclose the identity of the controlling entity and other related Affiliates. This may create a problem if the prospective licensee already has a license to the Affiliate's patents through an earlier license from a related entity, or desires a license that extends to the patents held by related Affiliates. Second, some PAEs may obscure the identity of the individuals and entities that share in their licensing proceeds. When there are loose affiliations between related entities, it may be difficult for the prospective licensee to identify the beneficial party or true party-in-interest, which will frustrate the licensee's ability to

determine whether it has already licensed the claimed technology through a cross-license or other arrangement with another party.

The multi-Affiliate model may benefit PAEs focused on litigation. For example, the use of Affiliates may allow one business to wind down upon completion of a litigation campaign, while others remain active, or to protect affiliated business interests from countersuit, creditors, or other claims, if one entity should fail. Because ownership structure has minimal impact on infringement, validity, or damages analyses, it would not create significant downside for a controlling PAE or its Affiliates. However, it could create challenges for the defendant.

Chapter 3: Patent Assertion

Introduction

Patents are a PAE’s primary asset. PAEs generate revenue by licensing patents or, more rarely, obtaining court-awarded damages for infringement.¹⁷⁸ In general, there are two ways that a PAE, or other patent holder, can begin licensing negotiations. The PAE can reach out to a potential licensee by sending a written demand or other communication, or the PAE can file suit alleging patent infringement. From the PAE’s perspective, the goal of any assertion—be it a demand or an infringement suit—is to obtain the largest possible royalty or other payment.

Although a number of studies have analyzed PAE litigation, litigation is not the only assertion strategy available to PAEs to generate revenue.¹⁷⁹ Some commenters have speculated that litigation merely represents the “tip of the iceberg” of total PAE assertion activity.¹⁸⁰ Few studies, however, have had access to data on either PAE demands or patent licenses, which has hampered efforts to quantify the economic impact of PAE activity. The FTC’s collection and analysis of non-public demand and license data thus provide the first broad description of these critical elements of PAE assertion activity beyond litigation behavior.

This chapter describes Study PAEs’ patent assertion behavior, including sending demands and bringing patent infringement suits, and examines Study PAE licensing outcomes.¹⁸¹ The 22 Responding PAEs reported 2,274 demands, 3,895 cases of alleged infringement, 2,715 license agreements, and approximately four billion dollars in licensing revenue across the nearly six-year study period. In addition to presenting demand and licensing data not available previously, the study’s litigation data represent a significant fraction of all patent lawsuits filed in the United States during the study period. Between January 1, 2009 and September 15, 2014, Study PAEs filed 2,452 patent infringement lawsuits,

¹⁷⁸ Some Study PAEs also reported revenues associated with patent transfers. None of the Responding PAEs reported obtaining a permanent injunction, exclusion order, or cease and desist order in any reported case in the study.

¹⁷⁹ See, e.g., Tim Pohlman & Marieke Opitz, *Typology of the Patent Troll Business*, 43 R&D MGMT. 103 (2013).

¹⁸⁰ Ewing & Feldman, *supra* note 92, at 37; Scott Morton & Shapiro, *supra* note 2, at 469.

¹⁸¹ See Appendix A: Glossary of Frequently Used Terms.

represented as unique docket numbers.¹⁸² The Administrative Office of the U.S. Courts reported that 27,932 patent lawsuits were filed between 2009 and 2014.¹⁸³ Consequently, the FTC estimates that the litigation reported in this study represents at least 8.8% of all patent suits filed in the U.S. during the study period.¹⁸⁴

Findings from recent research similarly suggest that the FTC study describes a substantial fraction of PAE litigation taking place during the study period. The United States Government Accountability Office estimated that patent monetization entities brought 19% of all patent litigation between 2007 and 2011.¹⁸⁵ The Executive Office of the President reported in June 2013 that “suits brought by PAEs have tripled in just the last two years, rising from 29 percent of all infringement suits to 62 percent of all infringement suits.”¹⁸⁶ Based on these estimates, the FTC calculates that its sample accounts for between 14% and 46% of PAE lawsuits brought during the study period.¹⁸⁷

¹⁸² The FTC asked Responding PAEs to identify all patent infringement suits that they or their Affiliates brought during the study period, January 1, 2009 through September 15, 2014, in U.S. district court or before the ITC. *See* Appendix C: PAE Special Order, Specification H.2. The 2,452 figure represents the number of docketed litigations that Study PAEs reported to the FTC. Throughout the remainder of the report, the FTC will use the number of discrete “cases,” instead of docketed litigations, to report its litigation findings. The FTC uses the term “case” to refer to a unique collection of a plaintiff, defendant, and patents. One docketed litigation may correspond to several discrete cases; often this is due to the Study PAE naming multiple defendants in the same lawsuit. Conversely, multiple docketed litigations may correspond to a single case; for example inter-district transfers. The FTC observed 2,452 docketed litigations which correspond to 3,895 unique cases. *See* Appendix B: Methodology (providing a more detailed description of how the FTC operationalized its definition of a patent case).

¹⁸³ *Statistical Tables for the Federal Judiciary*, ADMIN. OFFICE OF THE U.S. COURTS, <http://www.uscourts.gov/statistics-reports/analysis-reports/statistical-tables-federal-judiciary> (defining a patent lawsuit by a unique docket number which may represent multiple parties).

¹⁸⁴ This figure underrepresents the percentage of U.S. patent suits captured by the FTC’s study. The Administrative Office of the U.S. Courts presents data on a calendar year basis; 27,932 represents the number of cases filed over a six year period. The FTC’s study period ended in September 2014, and is therefore slightly less than six years long.

¹⁸⁵ *See* 2013 GAO REPORT, *supra* note 2, at 17. The GAO used the term “patent monetization entity” (PME) to describe an entity that “buy[s] patents from others for the purpose of asserting them for profit.” *Id.* at 2. This definition is nearly equivalent to the FTC’s definition of a PAE.

¹⁸⁶ EOP PATENT ASSERTION AND U.S. INNOVATION REPORT, *supra* note 2, at 1.

¹⁸⁷ Using the GAO’s estimate of the share of total litigation patent monetization entities brought (19%) as the lower bound on the share of total litigation PAEs brought during the study period yields 5,307 PAE lawsuits during the study period (19% of the 27,932 lawsuits reported by the Administrative Office of the U.S. Courts). Using the EOP’s estimate of the share of total litigation PAEs brought in 2013 (62%) as the upper bound on the share of total litigation PAEs brought during the study period yields 17,317 PAE lawsuits during the study period (62% of the 27,932 lawsuits reported by the Administrative Office of the U.S. Courts). Therefore, the range of the estimated number of PAE lawsuits during the study period is 5,307-17,317.

The FTC found that patent assertion behavior differed dramatically depending on whether the Study PAE employed the Portfolio PAE or Litigation PAE business model. All Portfolio PAEs in the FTC's study sent demands to initiate patent licensing negotiations with potential licensees, and Portfolio PAEs typically executed patent licenses without suing the licensee (only 29% of Portfolio PAE licenses related to settled litigation). By contrast, only ten of the 18 Litigation PAEs or their Affiliates sent demands, and 93% of Litigation PAE licenses followed a patent infringement lawsuit against the licensee.

Portfolio PAE and Litigation PAE litigation behavior was also very different. Less than 1% of Portfolio PAE cases involved only a single patent while nearly 60% of their cases involved between five and ten patents. By contrast, 61% of Litigation PAE cases involved only a single patent and 77% involved two or fewer patents. Portfolio PAE cases also took much longer to settle than Litigation PAE cases: 66% of Litigation PAE cases that settled during the study period settled within a year while only 26% of Portfolio PAE cases that settled during the study period settled within a year. Further, while all of the Portfolio PAE cases that terminated during the study period generated a patent license, only 76% of terminated Litigation PAE cases generated a patent license.

The vast majority of Portfolio PAE patent licenses included many more patents and generated much more revenue than those of Litigation PAEs. Seventy-five percent of Portfolio PAE licenses included more than 1,000 patents while 90% of Litigation PAE licenses included fewer than ten patents. The royalties associated with patent licenses were similarly skewed. For example, 77% of the Litigation PAE licenses generated royalties of less than \$300,000 while 65% of Portfolio PAE licenses generated more than \$1 million in royalties. Overall, in the study, Litigation PAEs accounted for 91% of the reported licenses, but only 20% of the reported revenue, or approximately \$800 million, while Portfolio PAE licenses, which accounted for 9% of the study total, constituted 80% of the reported revenue, or approximately \$3.2 billion. Portfolio PAE patent licenses tended to be more complex than those of Litigation PAEs. For example, more than 70% of Portfolio PAE licenses contained field-of-use restrictions while fewer than 2% of Litigation PAE licenses did.

The FTC's sample of 2,452 Study PAE lawsuits accounts for between 14% (based on 17,317 estimated PAE lawsuits) and 46% (based on 5,307 estimated PAE lawsuits) of PAE lawsuits brought during the study period.

Prior to initiating the study, the FTC was aware of concerns regarding PAEs' use of affiliates or shell companies.¹⁸⁸ Chapter 2 explained how some Responding PAEs created Affiliates as part of their business model. This chapter describes how those Affiliates asserted patents. Nine of the 14 Responding PAEs that reported demands did not send any demands in their own names but instead identified 57 Affiliates that sent demands. Similarly, a subset of Responding PAEs frequently used Affiliates when engaging in patent infringement litigation. Overall, the 22 Responding PAEs brought patent infringement cases with 256 unique plaintiffs. Seven of the Responding PAEs litigated through a single entity, 11 Responding PAEs identified cases brought by between two and ten Affiliates, and the remaining four Responding PAEs identified cases brought by more than ten of their Affiliates.

The FTC found that the majority of firms that were subject to patent assertion by a Study PAE had only one interaction with any Study PAE during the study period: 75% of firms receiving a demand from any Study PAE received only one demand, 73% of firms named as a defendant were a defendant in only one case with any Study PAE, and more than 70% of patent licensees had only one patent license with any Study PAE. A subset of firms, however, had many interactions with Study PAEs. For instance, the FTC found that 2.6% of the defendants in the study had been named as a defendant in more than ten cases initiated by Study PAEs. Similarly, a relatively small number of licensees paid a large share of the license royalties that Study PAEs obtained: the 25 firms that paid the largest total license royalties to Study PAEs accounted for 69% of the license royalties observed in the study. More than half of these 25 firms were in the "Computer & Electronic Product Manufacturing" industry.

As Chapter 5 will show, the vast majority of patents held by Study PAEs were Information and Communications Technology (ICT) patents: 88% were in the Computers & Communications or Other Electrical & Electronic technology categories, and more than 75% of the Study PAEs' overall holdings were categorized as software-related patents.¹⁸⁹ As a result, it was not surprising that firms operating in "Computer & Electronic Product Manufacturing" industries were among the most frequent subjects of

¹⁸⁸ See, e.g., EOP PATENT ASSERTION AND U.S. INNOVATION REPORT, *supra* note 2, at 4 ("The PAE business model is generally seen as combining characteristics such as . . . hid[ing] their identity by creating numerous shell companies and requiring those who settle to sign non-disclosure agreements, making it difficult for defendants to form common defensive strategies.").

¹⁸⁹ See generally Chapter 5 (providing a detailed description of how the FTC determined the technologies to which Study PAE patents correspond).

assertion by Study PAEs. Firms in those industries frequently manufacture products that use ICT technologies. For example, the FTC observed that 24% of Study PAE demand recipients, 29% of Study PAE defendants, and 29% of Study PAE licensees were manufacturers of computer and electronic products. However, the FTC also observed that Study PAEs frequently asserted patents against firms operating in a broad range of industries that are unlikely to manufacture products that infringe ICT patents, including retailers. More than 17% of Study PAE demand recipients, 10% of Study PAE defendants, and 13% of Study PAE licensees operated in the retailing industry, which includes both brick-and-mortar retailers and non-store retailers, such as Internet merchants.

The remainder of this chapter provides a detailed description of Study PAEs assertion behavior. The first section of this chapter describes Study PAEs' use of demands in initiating patent licensing negotiations. The second section describes how Study PAEs litigated their patent holdings. The third section examines Study PAE licenses. In each section, the Commission identifies the industries in which Study PAEs most frequently asserted patents.

PAE Demand Behavior

The FTC asked Responding PAEs to provide the first demand sent to each recipient, by themselves or by their Affiliates, during the study period.¹⁹⁰ These demands varied widely from letters that identified patents and accused products, at one end of the spectrum, to letters that simply requested a non-disclosure agreement before beginning licensing negotiations, at the other end of the spectrum. Some demands provided detailed claim charts demonstrating that the sender had closely examined the recipient's business and products. Others were much vaguer, alleging that the recipient was probably using the patentee's technology simply because the patented technology was purportedly ubiquitous and likely employed in the recipient's business. Although only a few Study PAEs sent demands requesting specific dollar amounts for a license, firms that included this valuation information did so consistently.

The FTC also asked Responding PAEs to describe the demands that they or their Affiliates sent during the study period, including the identity of the firm to whom they sent the demand and the name of the Study PAE sending the demand (often Affiliates of the Responding PAE). Using this information, the

¹⁹⁰ See Appendix C: PAE Special Order, Specification H.1.

FTC examined the frequency with which Study PAEs sent demands, and the industries that most frequently received demands.

Affiliates Sent Demand Communications

Study PAEs did not always begin licensing negotiations by sending demands to potential licensees.¹⁹¹ While all four Responding Portfolio PAEs reported that they or their Affiliates sent demands, only ten of the 18 Responding Litigation PAEs reported that they or their Affiliates sent demands during the study period.¹⁹²

The Study PAEs that engaged in demand communication sent 2,274 total demands during the study period, January 1, 2009 through September 15, 2014. Although Litigation PAEs as a group sent more demands overall, Portfolio PAEs sent a larger number of demands per Responding PAE. A relatively small number of the Responding PAEs were responsible for most of the demands: three of the Responding PAEs and their Affiliates sent more than half of the demands in the study.¹⁹³ Finally, the Litigation PAEs were collectively responsible for sending just over two-thirds of all demands in the study.

In measuring how the Responding PAEs or their Affiliates sent demands, the FTC found that Responding PAEs varied in their use of Affiliates. Two Responding PAEs reported sending demands only in their own names. Another three Responding PAEs each reported that both they and their Affiliates sent demands. The remaining nine Responding PAEs reported that 57 total Affiliates sent demands and that they did not send any demands in their own names.

Overall, 68 Study PAEs sent demands. For the average Responding PAE that reported demands, approximately five Affiliates sent demands, while the maximum number of Affiliates that sent demands

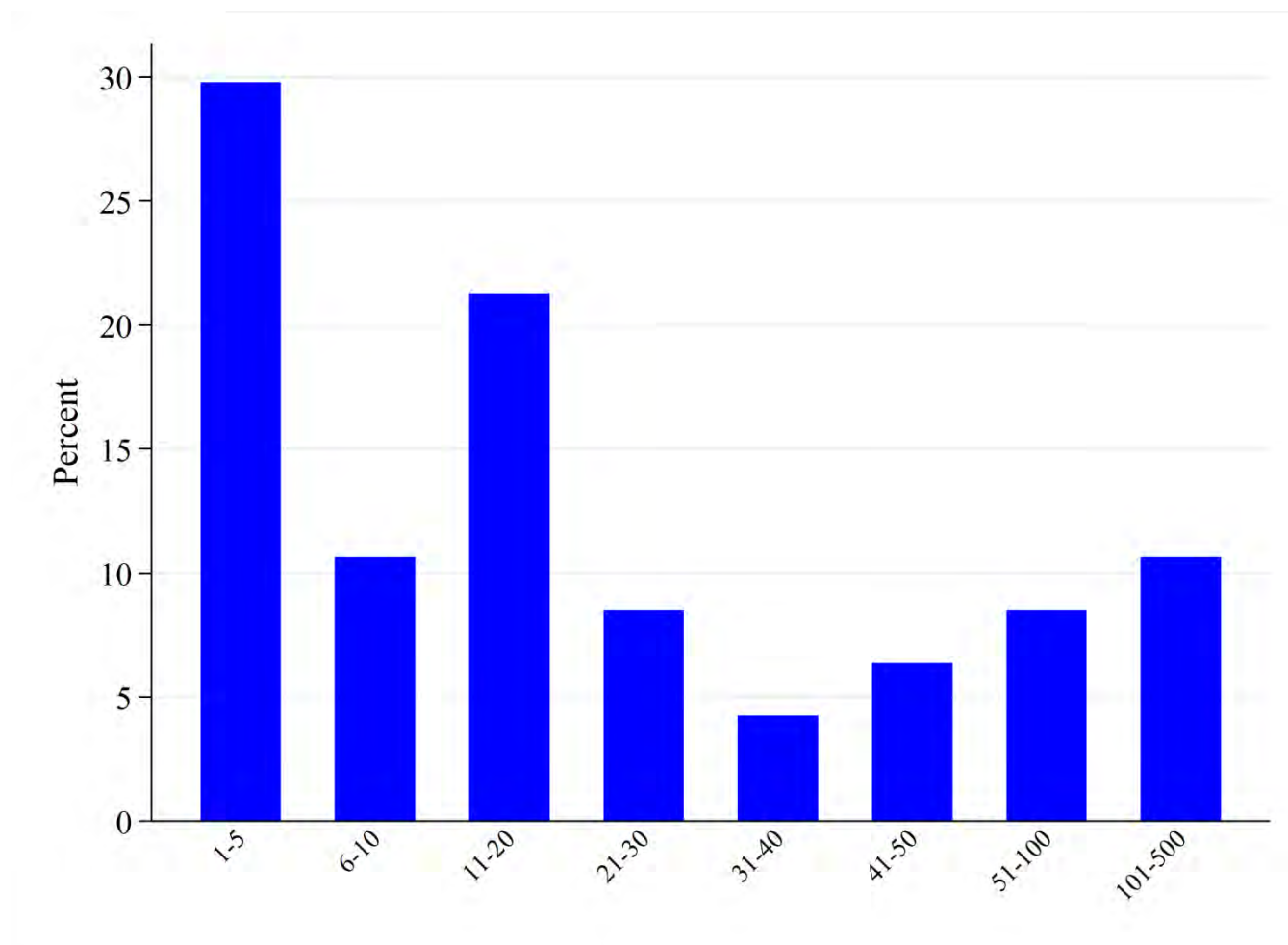
¹⁹¹ See Appendix A: Glossary of Frequently Used Terms. “Demand” means the first effort since January 1, 2009 to License any Patent, in whole or in part, and any other attempt to generate revenue by authorizing a Person outside the Firm to practice an invention claimed in a Patent. Demand does not include complaints or pleadings filed with a United States district court or the United States International Trade Commission. *Id.*

¹⁹² Responding Portfolio PAEs are those Responding PAEs that followed the Portfolio PAE business model. Likewise, Responding Litigation PAEs are those Responding PAEs that followed the Litigation PAE business model. See Table A.1.

¹⁹³ The largest number of demands sent by a single Responding PAE and its Affiliates was 541.

related to a single Responding PAE was 20. Responding Litigation PAEs were more likely than Responding Portfolio PAEs to report Affiliates that sent demands; the average Litigation PAE identified about six different demand-sending Affiliates while the average Portfolio PAE identified about two different demand-sending Affiliates.

Figure 3.1: Demand Letters Sent By Study PAEs



Note: Sample corresponds to 47 Study PAEs and is restricted to demand-sending Study PAEs that sent their first demand at least 12 months prior to the end of the study.

Figure 3.1 presents a frequency distribution of the number of demands sent by individual Study PAEs.¹⁹⁴ Study PAEs' demand campaigns varied considerably in the number of demands sent. However, most

¹⁹⁴ Figure 3.1 is limited to Study PAEs (typically Affiliates) that sent their first demand at least one year before the study period ended. Including Study PAEs that sent their first demand in the last year of the study period might have biased the

Study PAEs sent demands to relatively few recipients. Approximately 30% of Study PAEs sent no more than five demands and about 10% of Study PAEs sent six to ten demands. Individual Study PAEs rarely sent a large number of demands.¹⁹⁵ Only 10% of the Study PAEs sent more than 100 demands, and the most active Study PAE in the data set sent fewer than 500 total demands during the study period.

Demand Recipients

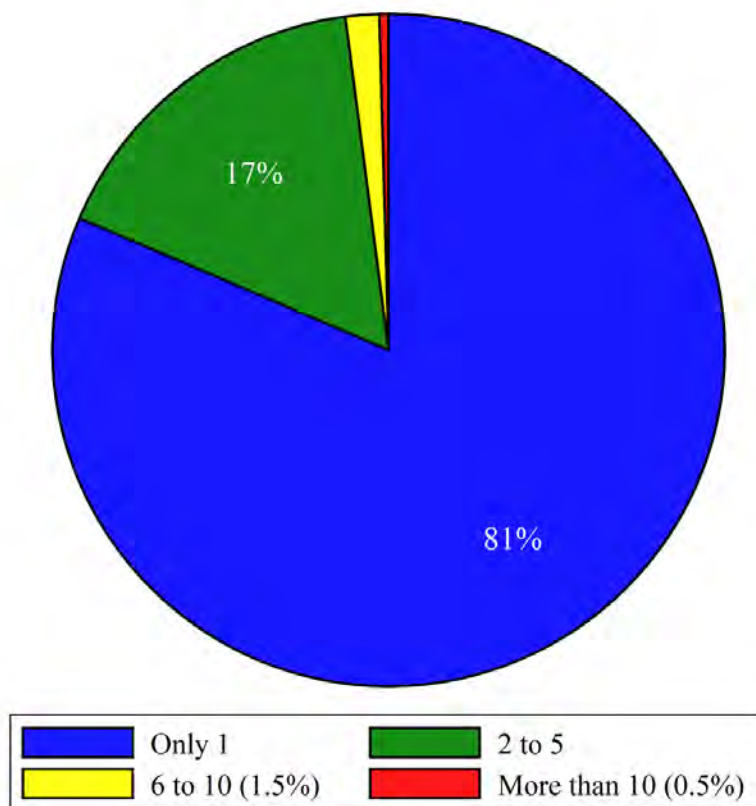
Most Demand Recipients Received Only One Demand from Any Study PAE during the Study Period

Approximately 1,600 different firms received demands from Study PAEs during the study period.¹⁹⁶ Figure 3.2 shows the frequency distribution of the number of demands received by each of the firms receiving demands from Study PAEs during the study period.

FTC's estimate of the number of firms contacted by a Study PAE downward as these Study PAEs may not have concluded their assertion campaign prior to the end of the study period.

¹⁹⁵ Portfolio PAEs and Litigation PAEs sent an average of 68 and 27 demands, per Study PAE, respectively.

¹⁹⁶ See Appendix B: Methodology (describing how the FTC identified the unique firms subject to assertion).

Figure 3.2: Number of Demands Received by a Recipient

Note: Figure represents 1,598 firms that received demand letters.

Over 80% of firms received only one demand from any Study PAE. Only a few firms received several demands. Thirty-three firms received more than five demands and the most demands received by any one firm was 17. Firms that received multiple demands may have received those demands from unrelated Study PAEs, different Affiliates of the same Responding PAE, or both.

Several PAEs, under the control of a common parent entity, could send multiple demands involving different patents to the same technology user. Given the opacity of certain PAE ownership structures, some prospective licensees worry that taking a license might invite another demand or lawsuit from unknown PAEs within the same family.¹⁹⁷ Commenters suggest that knowing whether demands initiated

¹⁹⁷ See Public Comment from Microsoft Corp. to the FTC & DOJ Patent Assertion Entity Activities Workshop 3 (Apr. 5, 2013), <https://www.justice.gov/atr/public/workshops/pae/comments/paew-0042.pdf> (“[I]f a potential licensee is unable to determine what patents are owned by a particular licensor’s subsidiaries . . . the licensor can negotiate a license to a narrow sliver of its portfolio while secretly holding back other patents for future assertion against the licensee.”).

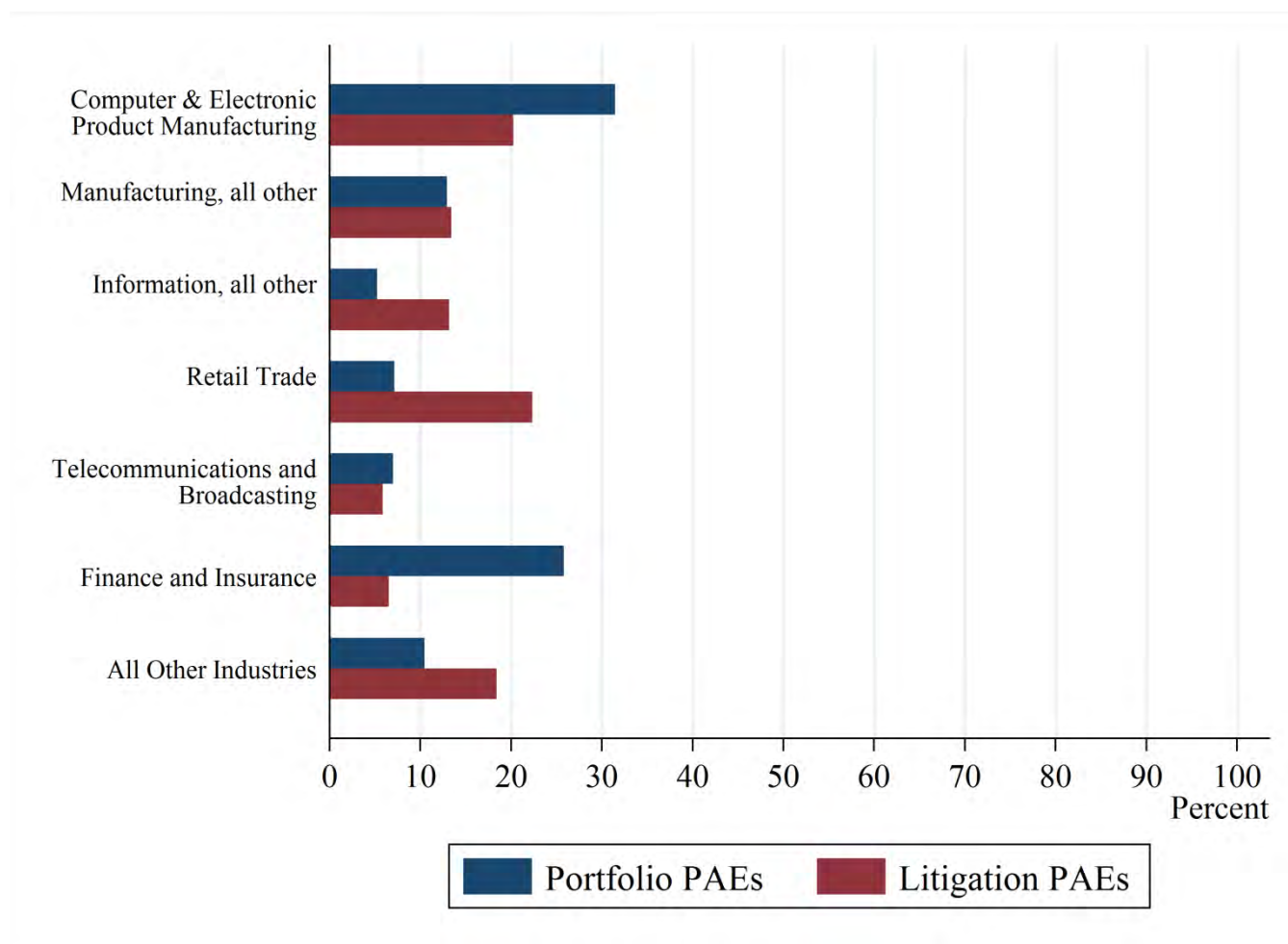
from related PAEs may help them negotiate licenses efficiently and avoid serial assertion by related PAEs. Although knowing a PAE's ownership structure may influence an accused infringer's decision to settle and for how much, it is uncertain, however, whether a PAE would agree to a single resolution, even if licensees knew the relationship between its Affiliates. More clarity about the relationships between entities sending demands may also help demand recipients determine whether they may already have a license to the patents they are alleged to infringe, particularly if the license or later-demand does not identify the specific patents at issue. For example, a licensee may have rights to future patents acquired by the licensor or its parent or subsidiary. If a licensee later receives a demand asserting these patents, but it does not know that the party sending the demand is related to its licensor, it will not know that it already has licensed the asserted patents.

To understand better whether Study PAE demand activity reflected this concern, the FTC examined whether firms that received multiple demands generally received demands from more than one Affiliate of the same Responding PAE. The FTC found that this was not a common occurrence. Only 5% of the demand recipients received demands from multiple Affiliates of a common Responding PAE. Portfolio PAEs identified no more than two different Affiliates that sent demands to the same firm, while Litigation PAEs identified as many as nine Affiliates that sent demands to the same firm.

Demand Recipients Operated in a Range of Industries

To identify whether Study PAE demand activity focused on end-users, the FTC examined the industries to which Study PAEs most frequently sent demands by matching the demand recipient to its primary industry.¹⁹⁸ Figure 3.3 shows the results of this analysis for both Litigation PAEs and Portfolio PAEs.

¹⁹⁸ The FTC assigned a single industry designation to each of approximately 4,950 firms that received a demand, were a defendant in patent litigation, or were a licensee of one (or more) of the Responding PAEs. The FTC adopted the U.S. Census's North American Industry Classification System (NAICS) to make this assignment. The FTC defined a firm's industry as the industry that it "primarily" operated in; that is, the industry that accounted for most of its activity, and used LexisNexis's Corporate Affiliations business database to build the correspondence between the firms that were subject to assertion in the FTC's data and their primary industry. In those instances where the LexisNexis's Corporate Affiliations business did not identify an industry for a firm, the FTC conducted an Internet search to determine the firm's primary industry using the industry definitions provided by the NAICS. Using these methods, the FTC matched 96% of the firms that were subject to assertion to a primary industry. The industries that were most subject to patent assertion by Study PAEs were: "Computer & Electronic Product Manufacturing," "Manufacturing, all other" (that is, not including "Computer & Electronic Product Manufacturing"), "Retail Trade," "Finance and Insurance," "Telecommunications and Broadcasting," and "Information, all other" (which includes Information industries other than Telecommunications and Broadcasting such as

Figure 3.3: Industry of Demand Recipient

Note: See the Methodology Appendix for a description of how firms are assigned to industries. The “Information, all other” industry includes, but is not limited to, firms operating as Software Publishers, Motion Picture and Sound Recording firms, and Internet Publishing and Broadcasting and Web Search Portals firms. Figure depicts 728 Portfolio PAE demands and 1,516 Litigation PAE demands.

While both Litigation PAEs and Portfolio PAEs sent more demands to firms operating in manufacturing industries than any other industry, they sent the majority of their demands to firms that did not operate in these industries. Litigation PAEs sent 33% of their demands to firms in manufacturing industries (with 20% of their demands sent to firms in the “Computer & Electronic Product Manufacturing” industry) compared to 44% for Portfolio PAEs (with 31% of their demands sent to firms in the “Computer &

software publishers, movie production, and Internet portals). See Appendix B: Methodology (providing a detailed description of the technique used to match firms to industries).

Electronic Product Manufacturing” industry).¹⁹⁹ Outside of manufacturing industries, Figure 3.3 shows that Portfolio and Litigation PAEs focused their demands on different industries. Litigation PAEs focused on firms operating in the “Retail Trade” and “Information, all other” industries. Portfolio PAEs, by contrast, focused much more on sending demands to firms operating in the “Finance and Insurance” industry.

Firms engaged in “Retail Trade” generally do not manufacture products themselves. The North American Industry Classification System (NAICS) classification for “Retail Trade” includes “establishments engaged in retailing merchandise, *generally without transformation*, and rendering services incidental to the sale of merchandise.”²⁰⁰ This definition includes both brick-and-mortar retailers and non-store retailers, such as Internet retailers. Because they generally do not produce products themselves, it is likely that the vast majority of firms in the “Retail Trade” industry received demands related to third-party products or services that they acquired either as resellers or as end-users.²⁰¹ In any event, such firms lie downstream in the distribution chain (as resellers, end-users, or customers) of the firms that developed the allegedly infringing products or technology and therefore may not possess technical information regarding their functionality.

Materials provided by Responding PAEs to the FTC indicated that some demands sent to firms in the “Retail Trade” industry did relate to products produced by the Retail Trade firms, such as private label

¹⁹⁹ Manufacturing industries includes both “Computer & Electronic Product Manufacturing” and “Manufacturing, all other.”

²⁰⁰ See 2012 NAICS, U.S. CENSUS BUREAU, <https://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart=2012> (click the link “44-45” for “Retail Trade”, then click the link “44-45” again for “Retail Trade”) (emphasis added). The NAICS definition further notes that “the *buying of goods for resale* is a characteristic of retail trade establishments that particularly distinguishes them from establishments in ... manufacturing,” and that “establishments that both manufacture and sell their products to the general public are not classified in retail, but rather in manufacturing.” *Id.* (emphasis added).

²⁰¹ It is possible, however, that some “Retail Trade” firms may develop and utilize proprietary technology related to their retail activity, and that this technology may be the subject of the demand (e.g., a shopping website with customized search and payment features). In this way the NAICS code industry categorization may overcount the number of end-users subject to patent assertion by Study PAEs. Similarly, the NAICS code industry categorization may also undercount the number of end-users subject to patent assertion by Study PAEs as some manufacturers may be end-users of technology (e.g., automobile manufacturers incorporating wireless communication modules into their vehicles).

products.²⁰² However—in the cases where it could be determined from these materials—the vast majority of the demands related to technologies that the letter recipient used, but did not produce.²⁰³

Comparison with Prior FTC Enforcement Regarding PAE Demand Letters

The FTC has brought one enforcement action against a PAE. In 2014, the FTC settled charges that MPHJ Technology Investments, LLC (“MPHJ”) used deceptive claims and false legal threats in letters sent to thousands of small businesses around the United States in an attempt to sell licenses to its patents. In particular, the FTC complaint alleged that in more than 9,000 letters sent under the names of numerous MPHJ subsidiaries, MPHJ falsely represented that many other companies had already agreed to pay thousands of dollars for licenses. The complaint also alleged that subsequent letters warned that MPHJ’s law firm would file a patent infringement lawsuit against the recipient if it did not respond to the letter, and that this suit would be filed imminently. In reality, the complaint alleged, the senders had no intention—and did not prepare—to initiate lawsuits against the small businesses that did not respond to their letters. MPHJ never filed any such lawsuits. The FTC settlement barred MPHJ and its law firm from making similar deceptive representations when asserting patent rights.²⁰⁴

Although the FTC brought its action against MPHJ because of its allegedly deceptive behavior, other commenters have suggested that large-scale demand letter campaigns for low-revenue licenses may be common among PAEs, with or without deceptive demand letters.²⁰⁵ The FTC did not observe Study PAEs engaging in this pattern of behavior, however. Many Litigation PAEs did not send demand letters, and those that did sent relatively few demands during the study period. In addition, Litigation PAEs

²⁰² For demands sent to firms in the “Retail Trade” industry, the FTC reviewed the Study PAEs’ responses to Request H.1.h (“State all accused product(s) relating to the Demand”), the demands produced by the Study PAEs, and the patents identified in connection with those letters.

²⁰³ This included technology related to websites, call centers, inventory control and point-of-sale systems.

²⁰⁴ See MPHJ Tech. Invs., LLC., 159 F.T.C. 1004 (2015).

²⁰⁵ See, e.g., *Update: Patent Demand Letter Practices and Solutions: Hearing Before the Subcomm. on Commerce, Mfg., & Trade of the H. Comm. on Energy & Commerce*, 114th Cong. 3 (2015) (statement of Rep. Michael C. Burgess, Chairman, Subcomm. on Commerce, Mfg., & Trade) (“Patent trolls continue to send demand letters in bulk to induce victims to pay unjustified license fees rather than fight back.”); *id.* at 8 (statement of Rep. Jan Schakowsky, Member, Subcomm. on Commerce, Mfg., & Trade) (“Patent assertion entities typically purchase patents and then assert that those patents have been infringed, sending vague and threatening letters to hundreds or even thousands of end users, typically, small businesses or entrepreneurs.”). See also *id.* at 14 (statement of Rep. Frank Pallone, Jr., Member, Subcomm. on Commerce, Mfg., & Trade) (noting FTC’s MPHJ consent order).

rarely generated license agreements without resorting to litigation: 93% of Litigation PAE patent licenses resulted from a litigation settlement. Portfolio PAEs frequently sent demands that resulted in patent licenses without the use of litigation. Portfolio PAE licensing behavior, however, did not reflect a business model directed towards generating low-revenue settlements from large-scale demand campaigns. Instead, Portfolio PAEs' licenses involved sophisticated licensees and generated relatively large revenues.

The absence of large-scale demand letter campaigns for low-revenue licenses among the Study PAEs suggests that this strategy is likely rare among PAEs that adopt either the Portfolio or Litigation PAE business model. However, the Commission cannot rule out the existence of other PAEs that rely on sending demands, rather than litigation, to generate low-revenue patent licenses. The FTC's sampling metrics (i.e., patent holdings and litigation) were less likely to select into the study sample a PAE that relied on demand letter campaigns to generate low-revenue licenses, but held few patents.²⁰⁶ Although we did not observe MPHJ-style assertion behavior in its sample of PAEs, we remain interested in hearing about public experience with PAEs that engage in potential deception through demand letter campaigns.

PAE Litigation Behavior

This section describes how Study PAEs asserted their patents in litigation.²⁰⁷ The analyses included in this section rely on a variety of documentary and quantitative materials provided by Responding PAEs. In particular, Responding PAEs provided documents describing all of their patent litigation in either federal court or at the ITC during the study period, including litigation settlement information. In addition, each Responding PAE had to describe each patent lawsuit brought by itself or its Affiliates

²⁰⁶ The sampling algorithm for selecting subjects for the FTC's study made use of two measures of a PAE's size: the number of defendants sued in patent infringement litigation and the number of patents held. While the FTC study included firms of different sizes (i.e., small, medium, and large firms based on estimated patent holdings and litigation), PAEs were more likely to be selected into the FTC's sample if they had either larger patent holdings or more litigation. The FTC did not identify a data source that would allow it to identify firms based on the number of demands sent, as opposed to the number of patents held or litigations filed, because this information is not generally publicly disclosed. Based on the findings of the study and conversations with market participants, the FTC suspects that relatively few PAEs specialize in sending demands to generate low-value patent licenses without the use of litigation. *See also* Appendix B: Methodology (providing a detailed description of the sampling algorithm).

²⁰⁷ *See* Appendix A: Glossary of Frequently Used Terms. "Litigation" means any civil action commenced in a United States district court or with the United States International Trade Commission. *Id.*

during the study period. This included all jurisdictions and docket numbers associated with all patent lawsuits; the plaintiffs, the defendants, and all patents named in the lawsuit; the resolution of the lawsuit; and whether the lawsuit involved wireless patents.

Using this information, the FTC measured: the number of cases initiated by Study PAEs, the number of Affiliates identified as plaintiffs, the technology categories to which the litigated patents corresponded, the number of patents asserted in litigation, the defendants' primary industry, the fraction of cases that settled, the duration of settled cases, the choice of jurisdiction by the plaintiff, the actions taken by a court on the case, and the use of contingency fee counsel. The Commission also measured the frequency with which a unique defendant was sued by any Study PAE and, if sued multiple times by the same Responding PAE, whether any of the suits were brought by multiple Affiliates.

For purposes of this study, the FTC defined a patent case as dispute between a plaintiff and defendant on a set of patents, where a set may comprise just one patent. Thus, under this definition, a single litigation (defined by a docket number) that lists multiple defendants counts as multiple cases. On the other hand, litigation between a plaintiff and defendant related to the same patent or patents counts as a single case even if multiple dockets were associated with that case (such as inter-district transfers).²⁰⁸ Using this definition, the FTC identified 3,895 cases that were initiated in U.S. district court by 256 unique plaintiffs against 1,956 unique defendants between January 1, 2009 and September 15, 2014.²⁰⁹

²⁰⁸ See Ball & Kesan, *supra* note 95 (adopting a similar approach to the FTC's methodology); see also Jay P. Kesan & Gwendolyn G. Ball, *How Are Patent Cases Resolved? An Empirical Examination of the Adjudication and Settlement of Patent Disputes*, 84 WASH. U. L. REV. 237 (2006). The FTC's study period spans the implementation of the America Invents Act (AIA), which limited the circumstances in which multiple defendants can be joined in one action. Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 19(d)(1), 125 Stat. 284, 332 (2011) (codified at 35 U.S.C. § 299). Separating litigations that have multiple defendants into separate cases resolves the issues associated with comparisons of litigation before and after the AIA's implementation.

²⁰⁹ In the submitted data, Responding PAEs sometimes reported multiple patent infringement lawsuits (with different docket numbers) corresponding to litigation brought by a Responding PAE (or its Affiliate) against a single defendant where each litigation referenced identical patents. The most common cause of these multiple lawsuits corresponding to a single dispute was when a court either consolidated a number of related lawsuits or transferred a lawsuit to another district court. In addition, in some instances a plaintiff added or subtracted patents from the set of patents identified in the original complaint, sometimes by filing additional complaints and receiving additional docket numbers. In this study, we treated the multiple records corresponding to what was, in essence, a single patent infringement dispute by capturing the relevant information describing the patent dispute from the multiple docket entries contained in the submitted data and reducing the multiple dockets to a single case observation. Thus, our analysis determined that the 2,452 lawsuits (unique docket numbers) reported by the Responding PAEs corresponded to the 3,895 patent cases analyzed in this section of the report. See also Appendix B: Methodology (providing a detailed explanation of how the case observation was created).

In addition, four Responding PAEs and their Affiliates filed complaints leading to 58 ITC investigations. All but one of the ITC investigations had a counterpart case in district court. The FTC therefore limited its analysis in the remainder of this section to those cases initiated in U.S. district court and captured the results of the ITC investigations via their counterpart district court cases.²¹⁰

The Special Order required Responding PAEs to identify, on a per-defendant basis, whether each litigation was pending and, if not, whether the litigation terminated pursuant to a settlement, and, if the litigation settled, whether the PAE granted the defendant a patent license.²¹¹ In the study data, 87% of the cases initiated within the study period terminated by the end of the study period. Those cases that were pending at the end of the study period, September 15, 2014, were predominantly associated with complaints filed late in the study period.²¹² Seventy-seven percent of these terminated cases settled whereas the remainder ended without a settlement.²¹³ None of the Responding PAEs reported obtaining a permanent injunction, exclusion order, or cease and desist order in any reported case in the study. Study PAEs were awarded damages in three reported instances.²¹⁴

²¹⁰ Fifty-seven of the 58 ITC investigations were terminated during the study period, and settlements were reported for 55 of the 57 terminated investigations. The same outcomes were reported in the counterpart district court cases.

²¹¹ See Appendix C: PAE Special Order, Specification H.2.k. A settlement is a payment made in consideration of damages for infringement in the time period prior to the lawsuit, whereas a license is a grant of a right to practice the patent in the time period after the agreement is entered. See, e.g., *Schering Corp. v. Roussel-UCLAF SA*, 104 F.3d 341, 345 (Fed. Cir. 1997). While most agreements ending litigation contain both settlement and license provisions, the Special Order asked parties to identify the two separately in order to encompass litigation settlements that did not include prospective licenses.

²¹² The FTC categorized all cases in the study as either pending or terminated. Under this categorization, a case terminated when a plaintiff sought dismissal of the case, the court dismissed the case, the parties reached a settlement, or the court rendered a final verdict.

²¹³ The Special Order required the Responding PAEs to identify (on a per-defendant basis) whether each litigation terminated, whether the litigation terminated pursuant to a settlement, and if the litigation settled, whether the settlement included a license agreement. The vast majority of cases in the study settled. That is, the plaintiff and defendant reached agreement resolving their dispute; the defendant typically made a payment to the plaintiff and, in consideration thereof, the plaintiff requested that the court terminate the case. We separately asked whether the settlement coincided with a license agreement; that is, rather than simply agreeing to withdraw the case, the plaintiff also granted the defendant a patent license to avoid future infringement. Upon considering each of the responses to the Special Order and reviewing a number of the settlement agreements produced, the Commission concluded that—in almost all cases—Study PAEs settled cases with a grant of a license. In many cases, this was expressed as a non-exclusive patent license. In other cases, it was expressed as a covenant not-to-sue. Either contract provision had the same effect: the plaintiff agreed both to withdraw the current litigation and not to pursue additional claims on the same patents against the defendant. As a result, we treated each settlement as a license.

²¹⁴ Independent review of the dockets in these lawsuits also identified two instances of a Responding PAE obtaining a default judgment.

For the 23% of cases that terminated without a settlement, termination was generally due to the grant of a dispositive motion in favor of the defendant or voluntary withdrawal by the plaintiff. One Responding PAE reported that one of its Affiliates was sanctioned under Rule 11 of the Federal Rules of Civil Procedure in multiple proceedings before the same court involving the same asserted patent.²¹⁵

Responding PAEs reported no instances during the study period in which courts awarded fees pursuant to 35 U.S.C. § 285, which allows the district court, in exceptional cases, to grant reasonable attorney fees to the prevailing party. The FTC, however, reviewed the dockets of lawsuits pending at the close of the study period and found several cases in which Study PAEs were assessed fees pursuant to Section 285 after the study ended.

In April 2014, five months before the FTC's study period ended, the Supreme Court issued two decisions that lowered the standard for a successful litigant to obtain fees pursuant to 35 U.S.C. § 285.²¹⁶ Under the old standard, a case was exceptional under § 285 only when there was "material inappropriate conduct," or when it was both "brought in subjective bad faith," and "objectively baseless."²¹⁷ In *Octane Fitness, LLC*, however, the Court held that an exceptional case is "simply one that stands out from others with respect to the substantive strength of a party's litigating position (considering both the governing law and the facts of the case) or the unreasonable manner in which the case was litigated."²¹⁸ Because *Highmark* and *Octane Fitness* lowered the standard for a successful litigant to obtain fees, the FTC might have observed more fee awards under § 285 if the entire study period had occurred after these decisions.

²¹⁵ Federal Rule of Civil Procedure 11 allows a court to sanction an attorney or its client for filings that lack factual investigation, or are frivolous or harassing. FED. R. CIV. P. 11. *See, e.g.*, *Advanced Video Techs. LLC v. HTC Corp.*, No. 11 Civ. 06604 (CM), 2015 U.S. Dist. LEXIS 122423, at *35–43 (S.D.N.Y. Aug. 25, 2015) (considering but rejecting Rule 11 sanctions).

²¹⁶ *Highmark Inc. v. Allcare Health Mgmt. Sys.*, 134 S. Ct. 1744 (2014); *Octane Fitness, LLC v. ICON Health & Fitness, Inc.*, 134 S. Ct. 1749 (2014).

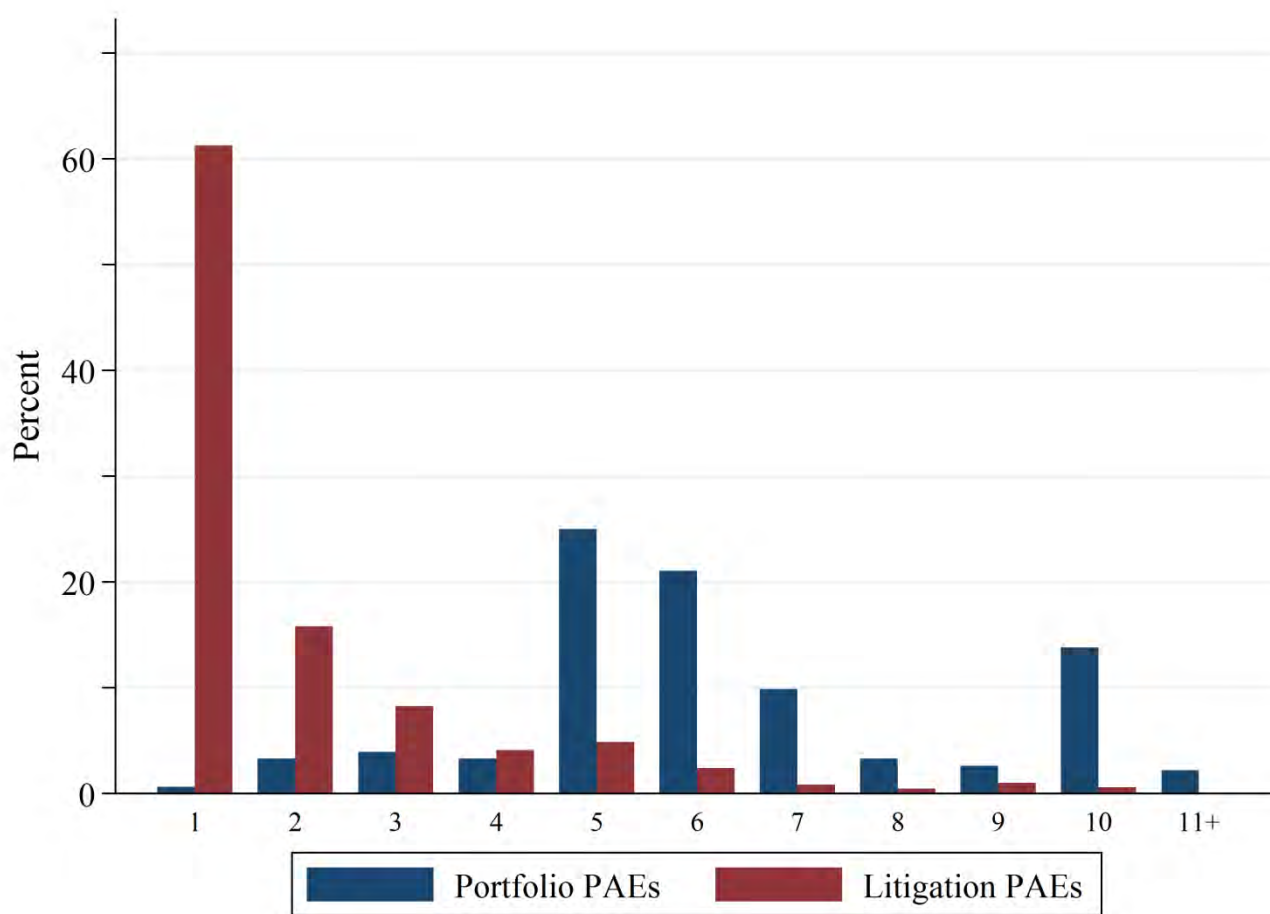
²¹⁷ *Highmark*, 134 S. Ct. at 1746 (quoting *Brooks Furniture Mfg., Inc. v. Dutailier Int'l, Inc.*, 383 F.3d 1378 (Fed. Cir. 2005)).

²¹⁸ *Octane Fitness*, 134 S. Ct. at 1751; *see also id.* at 1756 (holding that litigants establish their entitlement to fees under section 285 by a preponderance of the evidence); *Highmark*, 134 S.Ct. at 1748 ("Because § 285 commits the determination whether a case is 'exceptional' to the discretion of the district court, that decision is to be reviewed on appeal for abuse of discretion.").

Litigation PAEs and Portfolio PAEs Litigated Differently

Litigation PAEs initiated 96% of the patent infringement cases in the FTC's data. There was substantial variation within Litigation PAEs in the number of cases reported. Collectively, the five Responding Litigation PAEs that brought the most cases in the study accounted for 76% of the cases initiated by Responding Litigation PAEs, while the ten Responding Litigation PAEs that brought the fewest number of cases in the study collectively accounted for 14% of Responding Litigation PAE cases.

Figure 3.4: Frequency Distribution of the Number of Patents Included in a Case



Note: Number of Portfolio PAE cases is 152 and the number of Litigation PAE cases is 3,743.

Study PAEs tended to assert a relatively small share of the patents that they held. Litigation PAEs litigated a greater percentage of their overall holdings than Portfolio PAEs. Portfolio PAEs, which held

portfolios containing hundreds or thousands of patents, identified, on average, only 0.9% of their patent holdings as litigated in the reported cases.²¹⁹ Even Litigation PAEs that held smaller portfolios and relied heavily on litigation to negotiate licenses, litigated on average only 19% of the patents in their portfolios. When they did litigate, Portfolio PAEs tended to include many more patents per case than did Litigation PAEs. Figure 3.4 shows that 61% of Litigation PAEs cases involved a single patent and 77% involved two or fewer patents. In contrast, less than 1% of Portfolio PAE cases involved only a single patent, whereas nearly 76% of Portfolio PAE cases involved between five and ten patents.

While 87% of the cases initiated by Litigation PAEs terminated within the study period, only 51% of the cases initiated by Portfolio PAEs terminated within the study period. The FTC identified two aspects of the study data that may have caused this difference. First, a larger fraction of Portfolio PAE cases were initiated late in the study period: 40% were initiated in 2013 and 2014 versus 30% of Litigation PAE cases. Second, as discussed below, Litigation PAE cases tended to terminate much more quickly than Portfolio PAE cases.

Portfolio PAEs and Litigation PAEs differed in both the degree to which their terminated cases settled and the duration of the cases that settled.²²⁰ Whereas all Portfolio PAE cases that terminated within the study period settled, only 76% of terminated Litigation PAE cases did so. There was also significant variation in the settlement rate across Litigation PAEs; several Litigation PAEs reported settlements for all of their cases but one settled only 52% of its cases.

²¹⁹ This figure reflects the patents asserted in each case identified by the Study PAEs. In contrast, Chapter 5 presents similar figures derived from the Study PAEs' responses regarding whether each patent that they held was asserted in litigation. The figure in Chapter 5 may capture patents asserted in litigations that did not commence during the study period, in contrast to this number.

²²⁰ The FTC computed case pendency only for cases that settled. This is because the FTC found that Study PAEs' self-reported termination dates did not always accurately convey the date of conclusion of a litigation. Some cases had long periods of inactivity before the Court closed the docket.

Table 3.1 provides the distributions of the duration for cases initiated by Litigation PAEs and Portfolio PAEs.²²¹ The results from the table show that Litigation PAE cases settled much more quickly than Portfolio PAE cases. For example, two-thirds of settled Litigation PAE cases were settled within a year whereas half of settled Portfolio PAE cases took more than two years to settle.²²²

Table 3.1: Distribution of the Duration of PAE Cases

	Percentage of Cases that Settle			
	Within 6 Months	Within 12 Months	Within 18 Months	Within 24 Months
Portfolio PAEs	11%	26%	36%	52%
Litigation PAEs	34%	66%	83%	92%

Note: Table depicts only cases that settle and for which duration is reported. Portfolio PAEs row reflects 61 cases, and Litigation PAEs row reflects 2,024.

²²¹ For the cases that Study PAEs settled, the FTC defined the duration of a case as the interval between the date associated with the first complaint filed against a defendant on a given set of patents in any district and the date of the license associated with settlement of that case.

²²² As a point of comparison with the FTC's findings, the Federal Judicial Center issued in April 2016 an interim five-year report on the Patent Pilot Program (PPP), a ten-year program created by Congress to encourage enhancement of expertise in patent cases among judges in certain United States district courts. MARGARET S. WILLIAMS ET AL., FED. JUDICIAL CTR., PATENT PILOT PROGRAM: FIVE-YEAR REPORT (2016), [http://www.fjc.gov/public/pdf.nsf/lookup/Patent-Pilot-Program-Five-Year-Report-2016.pdf/\\$file/Patent-Pilot-Program-Five-Year-Report-2016.pdf](http://www.fjc.gov/public/pdf.nsf/lookup/Patent-Pilot-Program-Five-Year-Report-2016.pdf/$file/Patent-Pilot-Program-Five-Year-Report-2016.pdf) [hereinafter PATENT PILOT PROGRAM REPORT]. See Act of Jan. 4, 2011, Pub. L. No. 111-349, 124 Stat. 3674 (2011) (establishing a pilot program for the assignment of patent cases to "designated judges" in certain U.S. district courts). Among the report's findings are statistics on the average duration of patent cases in the pilot courts filed by "serial filers," compared to those filed by other plaintiffs. The authors found that "[c]ases not involving a serial filer generally take more time, on average, than those with a serial filer." PATENT PILOT PROGRAM REPORT, *supra*, at 31. "These differences are statistically significant across pending, terminated, and all cases." *Id.* (reporting 375 days for pending cases not involving serial filers compared to 260 days for those involving serial filers; 278 days for terminated cases not involving serial filers compared to 241 days for those involving serial filers; 299 days for all cases not involving serial filers compared to 245 days for those involving serial filers).

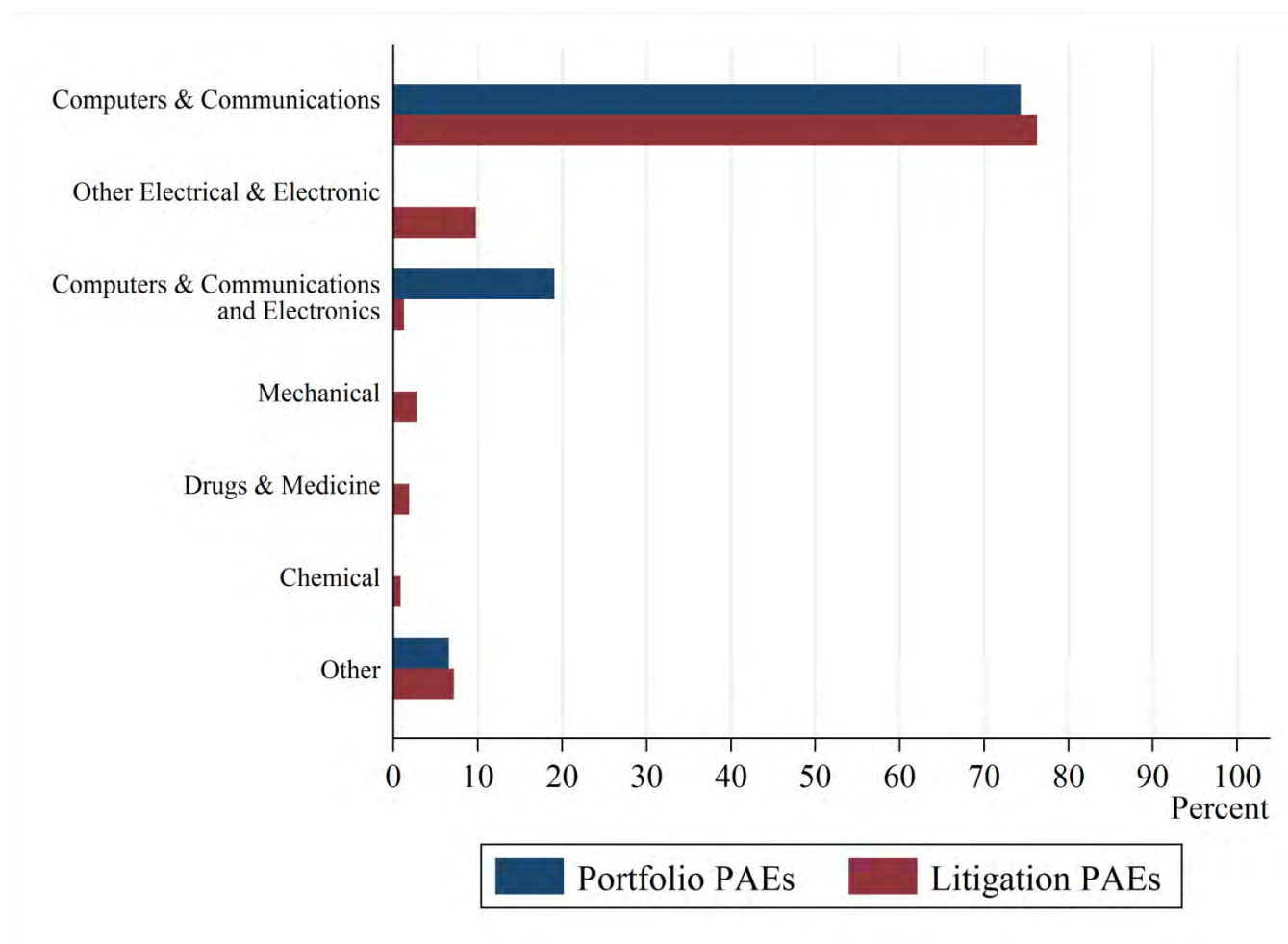
The Relationship Between Litigated Patents and Defendant Industries

As discussed earlier, some commenters have expressed concerns that PAEs frequently assert patents against the end-users of allegedly infringing products rather than the manufacturers of these products. The Patent Act allows a patent holder to sue anyone who “uses” the patented invention to attempt to recover damages for infringement, including end-users of a technology. Nevertheless, because end-users did not produce the allegedly infringing product, they likely have little information about how the product may infringe and, therefore, may be less well positioned to defend an infringement complaint than the product’s manufacturer. To understand better whether Study PAE litigation activity reflected this concern, the FTC examined the technology categories of the Study PAE patents that were asserted in litigation and the industries in which defendants operated. Using this information, the FTC analyzed how frequently Study PAEs asserted against defendants that likely manufactured potentially infringing products and how frequently they asserted against those that were likely end-users of these products.

To undertake this analysis, the FTC first determined the technologies of the patents asserted in litigation. Responding PAEs had to identify all patents asserted in each of their cases. The FTC used the National Bureau of Economic Research (NBER) patent technology categories to determine the technologies for each of the litigated patents in these cases.²²³ For 96% of cases in the study, all of the patents at issue in each case fell within a single technology category while for 4% of cases in the study, the patents at issue in each case fell within different technology categories.²²⁴

²²³ The FTC used the NBER patent technology categories developed by Bronwyn Hall, Adam Jaffe, and Manuel Trajtenberg to determine the technologies to which Study PAE patents corresponded. Hall et al., *supra* note 9; *see also* Chapter 5 (providing a detailed discussion of Study PAE patent holdings, and how the FTC categorized Study PAE patents).

²²⁴ The FTC combined the 4% of cases that included patents in different categories into two new groups. The Computers & Communications and Electronics group contains cases where at least one patent was in the Computers & Communications category and at least one patent was in the Other Electrical & Electronic category and none of the patents were outside of these two categories. The Other group contains two types of cases. The first set of cases is those that had patents in more than one technology category (except those cases in the Computers & Communications and Electronics group). The second set of cases is those where all of the patents were in the NBER’s Other technology category.

Figure 3.5a: Technology Category of Patents at Issue in Litigation

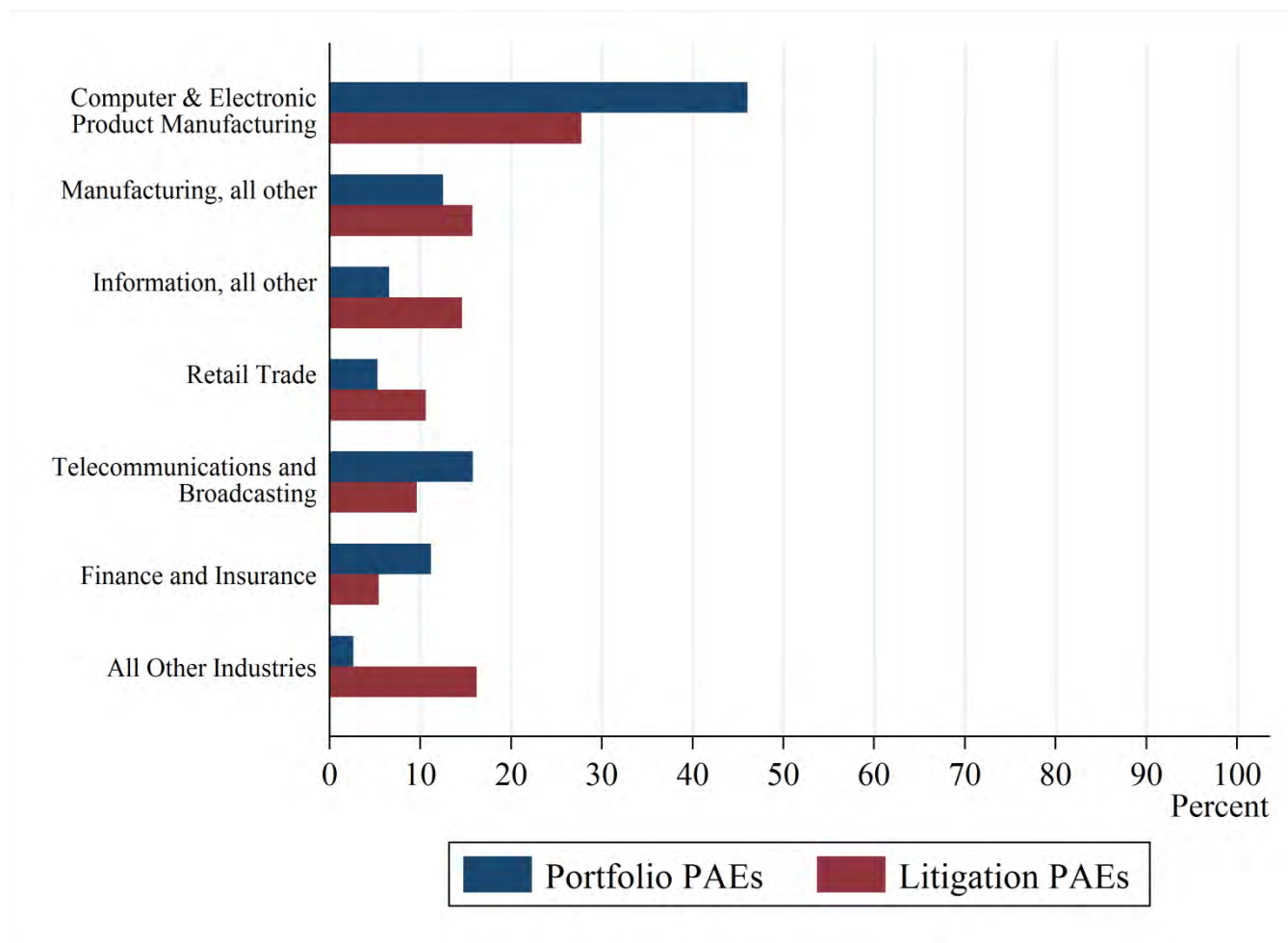
Note: "Computers & Communications and Electronics" includes cases that have patents in both "Computers & Communications" and "Other Electrical & Electronic." Figure depicts 152 Portfolio PAE cases and 3,743 Litigation PAE cases.

Figure 3.5a presents a frequency distribution of Litigation PAE and Portfolio PAE cases by technology category. Figure 3.5a shows that approximately 75% of cases solely involved Computers & Communications patents. Only 7% of Portfolio PAE cases involved patents outside of the Computers & Communications or Other Electrical & Electronic categories. In contrast to Portfolio PAEs, Litigation PAEs reported litigating patents corresponding to a wider variety of technology categories including the Drugs & Medical and Chemical categories.²²⁵ However, the fraction of cases involving patents in these

²²⁵ All of the Drugs & Medical patents involved medical devices.

other technology categories was small: fewer than 15% of Litigation PAE cases involved patents outside of the Other Electrical & Electronic category and the Computers & Communications category.

Figure 3.5b: Industry of Case Defendant



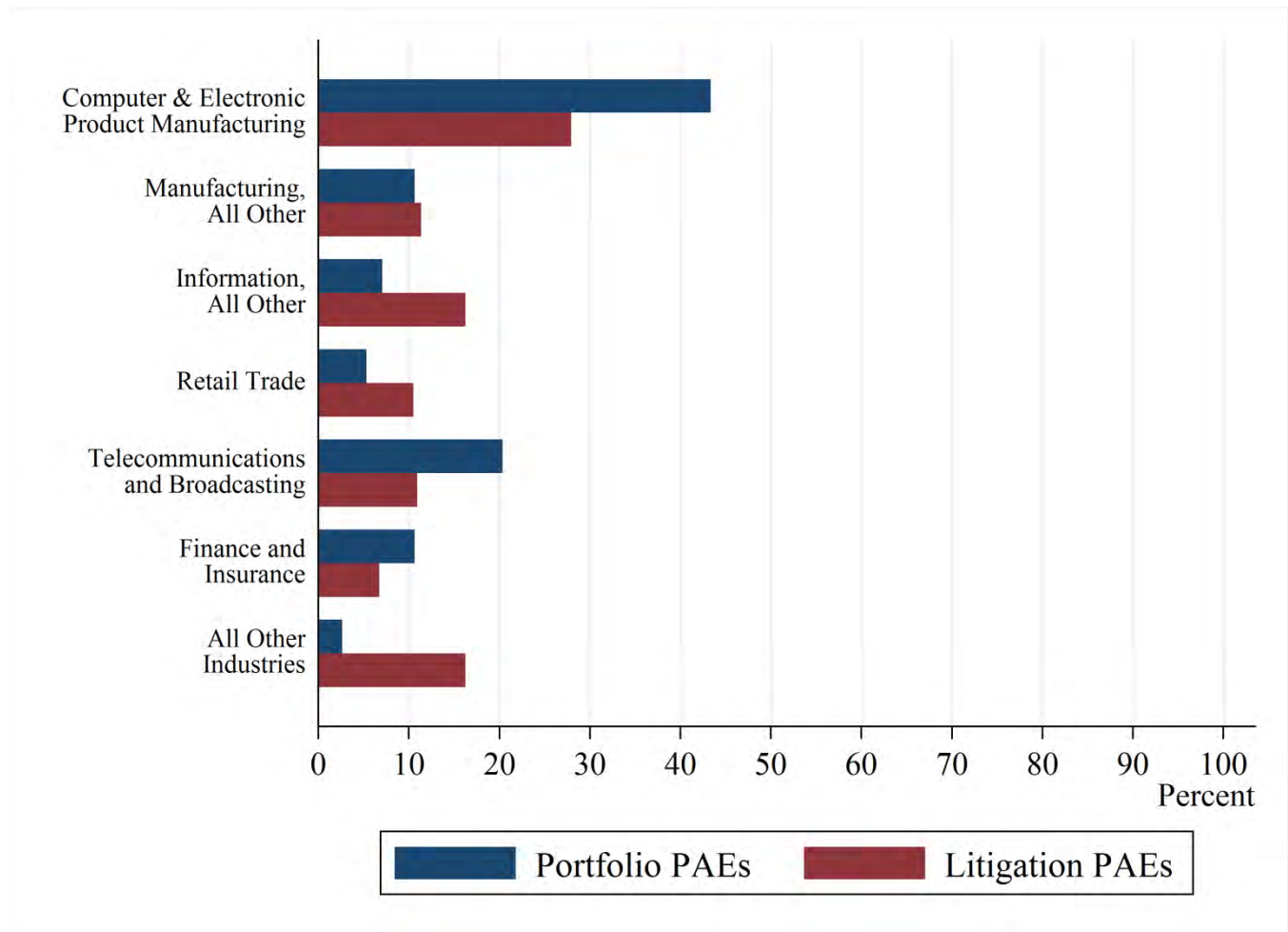
Note: See the Methodology Appendix for a description of how defendants are assigned to industries. The “Information, all other” industry includes, but is not limited to, firms operating as Software Publishers, Motion Picture and Sound Recording firms, and Internet Publishing and Broadcasting and Web Search Portals firms. Figure depicts 152 Portfolio PAE cases and 3,661 Litigation PAE cases.

Next, the FTC determined the industries in which defendants operated using the same methodology used to determine the industry of demand recipients.²²⁶ Figure 3.5b shows the results of this analysis for both Litigation and Portfolio PAEs. Portfolio PAEs and, to a lesser extent, Litigation PAEs focused much of their litigation activity on firms operating in manufacturing industries. Fifty-nine percent of Portfolio

²²⁶ See Appendix B: Methodology (providing a detailed description of the technique used to match defendants to industries).

PAE cases and 44% of Litigation PAE cases involved defendants in manufacturing industries (“Computer & Electronic Product Manufacturing” and “Manufacturing, all other”). Litigation PAEs sued a more diverse set of defendants overall than did Portfolio PAEs. Approximately 26% of Litigation PAE defendants operated in the “Retail Trade” and the “Information, all other” industries. By contrast, only 12% of Portfolio PAE defendants operated in these industries.

Figure 3.5c: Industry of Case Defendant for Cases Involving Only “Computers & Communications” Patents



Note: Conditional distribution depicts 2,823 Litigation PAE cases and 113 Portfolio PAE cases whose patents are exclusively in the technology category “Computers & Communications.” These cases account for 77% of cases in the study.

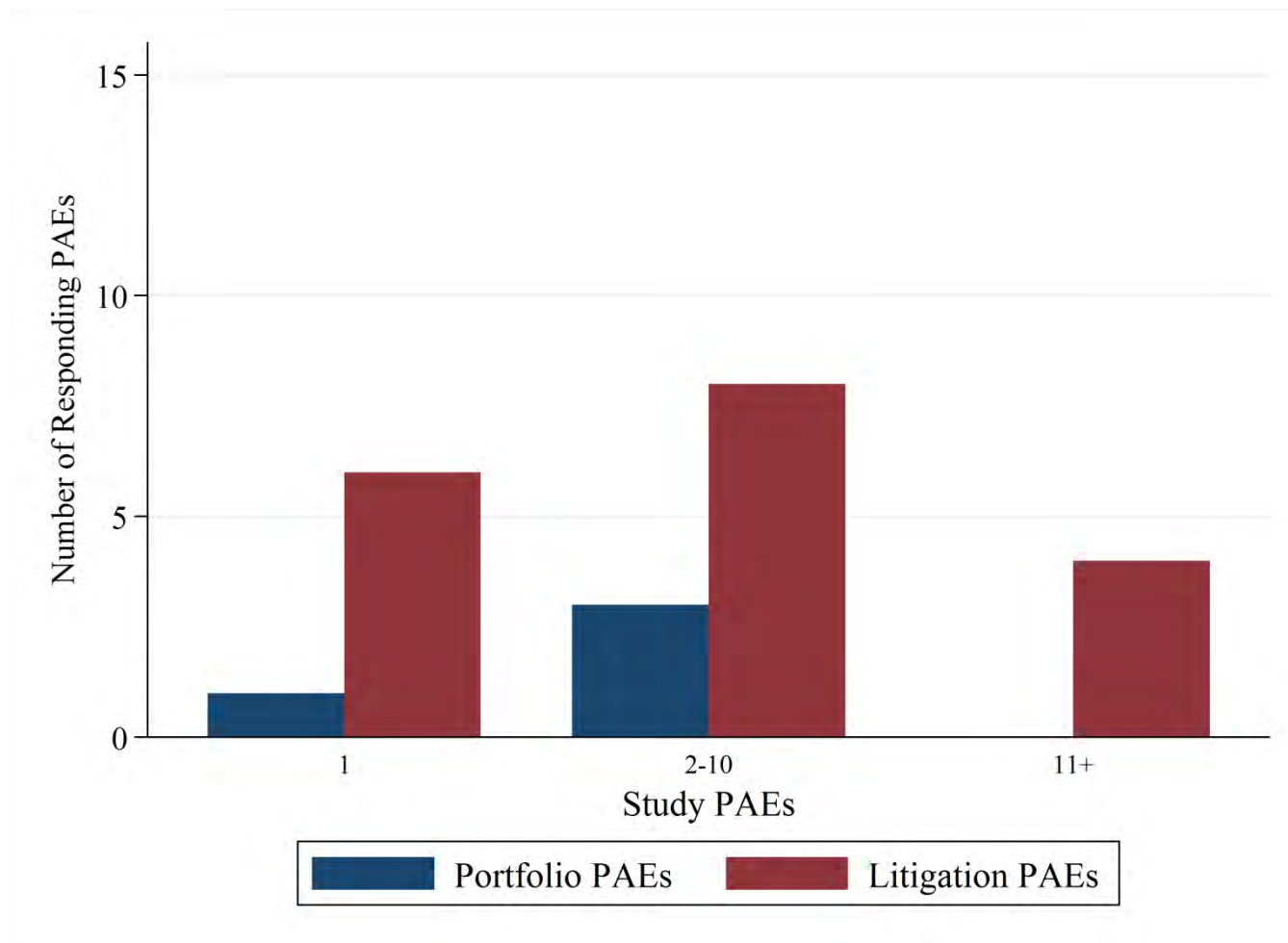
Finally, the FTC examined the correspondence between the technology categories of litigated patents and the industries in which defendants operated. Because approximately 75% of cases involved only patents in the Computer & Communications category, Figure 3.5c focuses on the distribution of

defendants' industries for cases relating solely to patents in the Computer & Communications category. This distribution of industries is broadly similar to the overall distribution of industries subject to any patent infringement litigation (as shown in Figure 3.5b). Study PAEs initiated Computers & Communications patent cases both against firms likely to manufacture products that could infringe those patents (i.e., manufacturers) and against firms that were likely the end-users of allegedly infringing products (e.g., retailers and financial service firms). Approximately 39% of Litigation PAE cases and 54% of Portfolio PAE cases solely related to patents in the Computers & Communications category were directed against defendants operating in a manufacturing industry. Except for the "Telecommunications and Broadcasting" industry, Litigation PAEs were more likely to assert these patents against firms operating in non-manufacturing industries than Portfolio PAEs. Taken together, these three examinations indicate that Study PAEs frequently asserted patents against likely end-users of allegedly infringing products.

Affiliates Filed Patent Infringement Suits

Corporate relationships, or other connections, between PAEs and Affiliate entities are not always clear from their names. To explore how often plaintiffs have a relationship with a party not named in the case, the FTC reviewed the study data to identify how often Responding PAEs sued in their own name, compared with how often their Affiliates sued. Twenty-two Responding PAEs identified cases brought by 256 unique plaintiffs. As shown in Figure 3.6, seven Responding PAEs litigated exclusively through a single entity, 11 Responding PAEs used between two and ten Affiliates to bring cases, and the remaining four Responding PAEs used more than ten Affiliates to bring cases.

Figure 3.6: Frequency Distribution of the Number of Study PAE Plaintiffs Used by Responding PAEs



Note: Figure depicts 256 Study PAEs.

The relationship between certain Responding PAEs and their Affiliates was clear from the names of the Affiliates (e.g., “Responding PAE subsidiary 1,” “Responding PAE subsidiary 2,” etc.). However, ten of the 18 Responding Litigation PAEs identified cases brought by their Affiliates for which the name of the Affiliate did not bear a clear relationship to its corresponding Responding PAE. Additionally, nine of these ten Responding Litigation PAEs sued the same defendant multiple times with different Affiliates as plaintiff.

Sixty-eight percent of reported cases involved the only interaction between a Responding PAE or one of its Affiliates and an individual defendant. However, a significant fraction of defendants were sued multiple times by a Responding PAE or its Affiliates. In 12% of cases, the defendant was named in two different cases involving plaintiffs affiliated with the same Responding PAE. In the study data, 5% of

cases involved a single defendant as a party to ten or more cases brought by plaintiffs affiliated with a single Responding PAE.

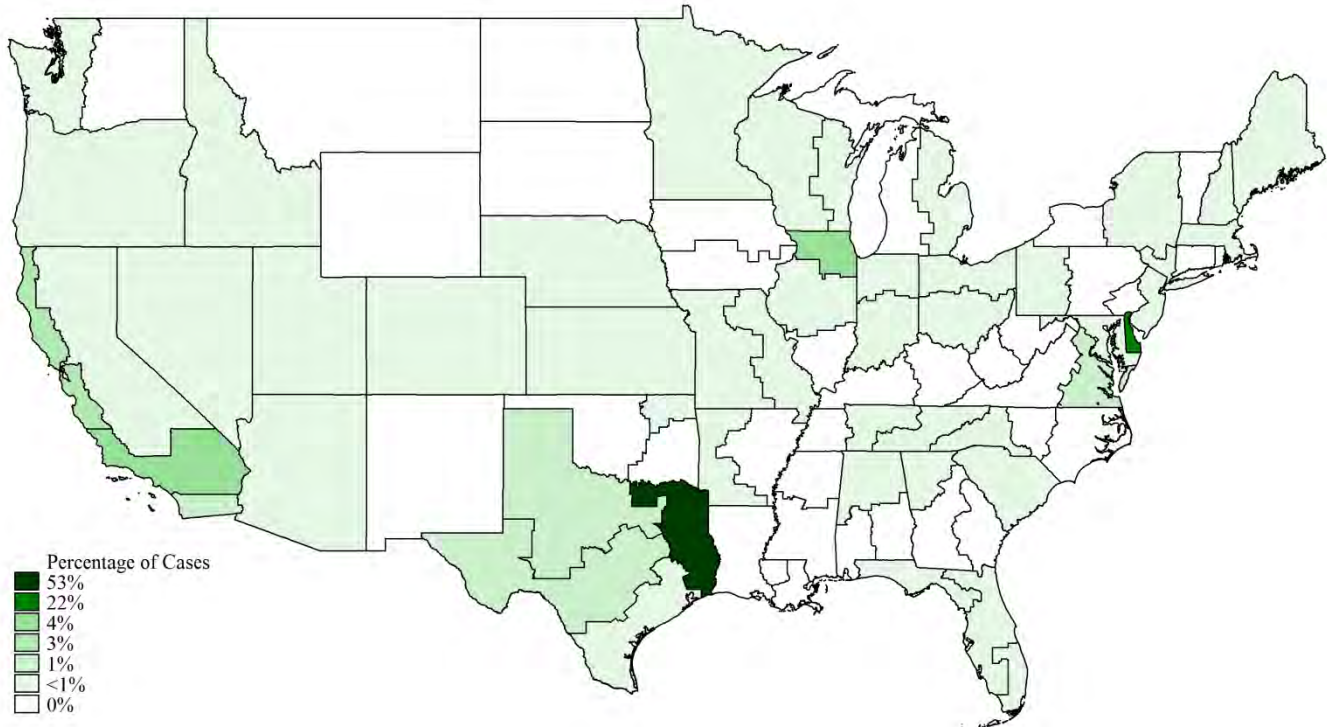
Study PAEs Initiated the Greatest Number of Cases in the Eastern District of Texas and the District of Delaware

Study PAEs initiated cases in more than 50 different federal judicial districts and also filed complaints leading to investigations before the ITC. Figure 3.7 shows the districts in which Study PAEs initiated cases. The Eastern District of Texas and the District of Delaware accounted for the largest share of cases in the study (53% and 22%, respectively).²²⁷ The five next most popular courts (Northern District of Illinois; Central, Northern and Southern Districts of California; and Northern District of Texas) together accounted for 14% of the cases in the study. The remaining 45 districts combined accounted for the remaining 11% of cases. This is consistent with earlier research.²²⁸

²²⁷ The District of Delaware and the Eastern District of Texas were leading jurisdictions of choice for both Portfolio PAEs and Litigation PAEs.

²²⁸ See 2015 PWC PATENT LITIGATION STUDY, *supra* note 6, at 15 (finding that among patent holders generally, the Eastern District of Virginia, the District of Delaware, and the Eastern District of Texas were the most active districts between 1995–2014); Press Release, Admin. Office of the U.S. Courts, Patent Cases Rise, With Two Courts Leading the Nation (Apr. 21, 2014), <http://www.uscourts.gov/news/2014/04/21/patent-cases-rise-two-courts-leading-nation> (finding that “while many districts show a double-digit increase in the number of patent filings in 2012–2013, the District of Delaware and the Eastern District of Texas saw the largest growth in patent cases, respectively, at 364 and 275 filings,” and that in 2013, patent cases “made up 63 percent of the [District of Delaware’s] civil caseload.”); 2013 GAO REPORT, *supra* note 2, at 24 (finding that between 2007 to 2011, PME’s “filed more lawsuits in the Eastern District of Texas than other types of plaintiffs”); *id.* at 2 (noting that a patent monetization entity (PME) is an entity that “buy[s] patents from others for the purpose of asserting them for profit.” This definition is nearly equivalent to the FTC’s definition of a PAE).

Figure 3.7: Proportion of Study PAE Cases by Judicial District of Initial Complaint



Note: Alaska & Hawaii have no PAE cases, and Puerto Rico and the US Court of Federal Claims have less than 1%. Total PAE cases represented is 3,895. Boundaries of districts from: Hansen, M. E., Chen, J., & Davis, M., *United States District Court Boundary Shapefiles (1900–2000)*, INTER-UNIVERSITY CONSORTIUM OF POLITICAL AND SOCIAL RESEARCH (2015), <https://www.openicpsr.org/openicpsr/project/100069/version/V1/view>.

Portfolio PAEs initiated cases in 16 districts. The District of Delaware was the most popular jurisdiction for Portfolio PAEs, accounting for 44% of cases, followed by the Eastern District of Texas and the Western District of Washington, which accounted for an additional 32% and 9% of cases, respectively. Litigation PAEs initiated cases in 49 different districts with the Eastern District of Texas accounting for 54% of cases followed by the District of Delaware with 21%. No other district accounted for more than 5% of Litigation PAE cases.

PAE Licensing Behavior

This section describes Study PAE licensing behavior.²²⁹ Patent licenses are generally non-public and often subject to non-disclosure agreements. This study builds upon existing empirical research into PAE activity by examining the contents of PAE patent licenses. The Special Order required Responding PAEs to provide all licenses that they or their Affiliates executed during the study period and to describe the licenses.²³⁰ This study makes a major contribution in providing insight into the relative frequency and nature of patent licensing by PAEs that occurs outside of litigation. In addition, this study evaluates certain characteristics of PAE patent licenses including monetary terms, such as the amount paid and whether payments are lump-sum or directly related to a product's sales, and geographic and field-of-use limitations. This section is particularly important in terms of understanding PAE revenue generation because all Study PAEs predominately earned their revenue through negotiated patent licenses or settlement agreements. The firms reported only three instances of receiving court-awarded damages.

Litigation PAEs and Portfolio PAEs Adopted Different Licensing Strategies

The FTC asked Responding PAEs to describe and produce all patent licenses to which they, or their Affiliates, entered into during the study period.²³¹ Responding PAEs disclosed 2,715 distinct licenses.²³² Portfolio PAEs and Litigation PAEs demonstrated different approaches to patent licensing. Portfolio PAE behavior was marked by (1) licensing without the use of litigation and (2) licensing large numbers of patents in each agreement. Portfolio PAEs tended to enter into agreements for broader and larger

²²⁹ See Appendix A: Glossary of Frequently Used Terms. "License" means authorization by the Patent holder to practice the claimed invention, including, but not limited to, a covenant not-to-sue and a covenant not-to-assert. *Id.*

²³⁰ See Appendix C: PAE Special Order, Specification H.3. Responding PAEs were directed to describe: the identity of the licensee and licensor, patent royalties, how royalties were determined (lump sum or running royalties), whether the license included a cross-license, field-of-use restriction, geographic restriction, whether the proceeds of the patent were shared with the inventor or the employer of the named inventor, and the patents licensed.

²³¹ See *id.*

²³² Responding PAEs submitted 2,346 spreadsheet entries describing licenses, some of which corresponded to multiple licensees. The FTC transformed the data so that each observation corresponded to a distinct licensee/licensor pair licensing a specific set of patents. This transformation resulted in 2,715 distinct licenses. See Appendix B: Methodology (providing a detailed description of the transformation).

portfolios of patents, which typically generated royalty payments well in excess of \$1 million. The typical Portfolio PAE license covered a portfolio that included more than one thousand patents.²³³

Many Portfolio PAEs possessed resources devoted to patent licensing outside of litigation. They frequently employed licensing executives and specialists, who often held similar roles in manufacturing firms prior to joining the Portfolio PAE. Portfolio PAEs negotiated 71% of their licenses without filing suit against the licensee.

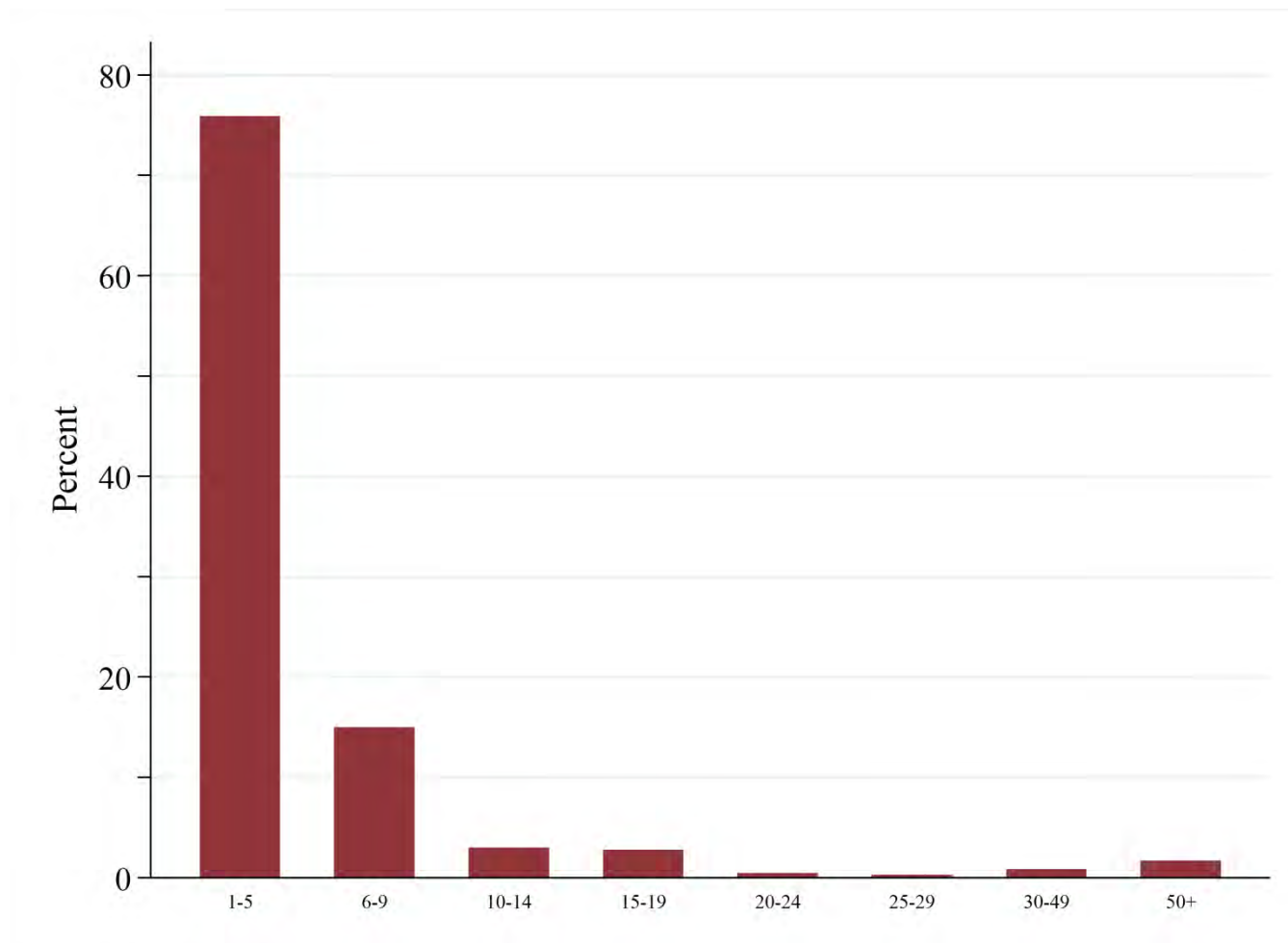
As noted, Litigation PAEs frequently sued before obtaining a license. Ninety-three percent of Litigation PAE licenses followed settlement of ongoing patent litigation.²³⁴ This finding matters for two reasons. First, it suggests one could use publicly observable litigation data to estimate how many patent licenses Litigation PAEs executed. That rough estimate, however, would not address settlement values or non-price license terms. Second, Litigation PAEs' predominant use of litigation suggests that suing was a necessary component of their licensing strategy.

Unlike Portfolio PAEs, Litigation PAEs typically delegated the negotiation of the patent licenses to outside attorneys and did not employ full-time staff for that task. This is consistent with a business model that relies on thin capitalization and reducing up-front costs. Litigation PAE licenses typically included far fewer patents than those negotiated by Portfolio PAEs. In part, that is because Litigation PAEs used Affiliates that frequently held fewer than ten patents, compared with the hundreds or thousands of patents held in Portfolio PAE portfolios. Figure 3.8 shows the distribution of Litigation PAE licenses based upon the number of patents licensed per agreement. As shown in Figure 3.8, more than 75% of Litigation PAE licenses included between one and five patents, and more than 90% included fewer than ten patents.

²³³ Seventy-five percent of Portfolio PAE patent licenses contained more than 1,000 patents.

²³⁴ By contrast, only 29% of Portfolio PAE licenses followed litigation.

Figure 3.8: Frequency Distribution of the Number of Patents Included in Litigation PAE Licenses



Note: Figure depicts 2,270 licenses from Litigation PAEs.

Affiliates Executed Patent Licenses

When Responding PAEs had multiple Affiliates, typically an Affiliate—and not the Responding PAE—held the patents in question and entered into the patent license with the licensee. Most often, the license was therefore only between that Affiliate patent holder and the licensee and extended only to patents held by the Affiliate; it did not extend to patents held by other Affiliates of the same Responding PAE. In a minority of cases, however, other Affiliates or the Responding PAE were also licensors. In these cases, the other Affiliates would often grant licenses to all patents that they held, or the Responding PAE would grant a license on behalf of itself or some of its Affiliates. There was considerable variation in the

manner and extent to which Responding PAEs did this across their licenses, suggesting that the scope of the license generally resulted from negotiation with licensees.²³⁵

License Term Characteristics Were Relatively Homogeneous

The Special Order directed Responding PAEs to answer several questions regarding the terms and scope of the licenses executed by themselves and their Affiliates.²³⁶ Reviewing this information, the FTC observed that the vast majority of patent licenses executed by Study PAEs were (1) non-exclusive, (2) lump-sum, and (3) for the life of the licensed patents.²³⁷

Reported Licenses Were Non-Exclusive

Reported data did not indicate that Study PAEs granted exclusive licenses to their patents; instead, Study PAE licenses generally granted non-exclusive rights.²³⁸ An exclusive license “prevents the patent owner (or any other party to whom the patent owner might wish to sell a license) from competing with the exclusive licensee, as to the geographic region, the length of time, and/or the field of use, set forth in the license agreement.”²³⁹ If a PAE granted an exclusive license, it would forgo the exclusive opportunity to

²³⁵ Frequently, Responding PAEs did not apportion lump sum payments across multiple Affiliate licensors in their responses. If several Affiliates were party to a license with a lump sum payment, often each Affiliate would report the license separately, but only some of the Affiliates would report the lump sum payment while others would report no revenue. *See* Appendix B: Methodology (providing a more detailed description of why some Study PAE licenses had no reported revenue).

²³⁶ *See* Appendix C: PAE Special Order, Specification H.3. Responding PAEs were directed to include: the identity of the licensee and licensor, patent royalties, a description of how royalties were determined (lump sum or running royalties), whether the license included a cross-license, field-of-use restriction, geographic restriction, whether the proceeds of the patent were shared with the inventor or the employer of the named inventor, and the patents licensed. *Id.*

²³⁷ The information request asked the Responding PAEs to indicate the sector to which any field-of-use restriction applied. Because virtually none of the Litigation PAE licenses included field-of-use restrictions, the FTC does not report the sector(s) to which the average restriction corresponded. A significant fraction of Portfolio PAE licenses did have field-of-use restrictions; most of these licenses reported that the licensed technology was limited to use in either the Computers & Communications or the Semiconductor sectors.

²³⁸ This was observed both by reviewing the license terms and by the fact that parties reported multiple licensees for the same patent. An exclusive license grants all rights to the licensee, including the right to sue to enforce the patent. *See* *Rite-Hite Corp. v. Kelley Co., Inc.*, 56 F.3d 1538, 1552 (Fed. Cir. 1995) (en banc) (“To be an exclusive licensee for standing purposes, a party must have received, not only the right to practice the invention within a given territory, but also the patentee’s express or implied promise that others shall be excluded from practicing the invention within that territory as well.”).

²³⁹ *See, e.g.*, USPTO, MANUAL OF PATENT EXAMINING PROCEDURE § 301 (Nov. 2015), <http://www.uspto.gov/web/offices/pac/mpep/s301.html>; *Alfred E. Mann Foundation for Scientific Research v. Cochlear Corp.*, 604 F.3d 1354 (Fed. Cir. 2010) (holding that if the patent holder grants an exclusive license, but does not transfer “all

assert the patents against others and write additional licenses. A non-exclusive license, by contrast, merely grants the licensee the freedom to practice the claims of the licensed patents.²⁴⁰ Granting non-exclusive rights allows the PAE to assert the licensed patents against more than one target and thereby obtain multiple licenses.

Reported Licenses Overwhelmingly Included Lump-Sum Payments

Patent licenses frequently include a payment structure comprising lump-sum payments, running royalties, or a combination of the two. Lump-sum payments are money payments with a contractually fixed amount. Often, a license will provide for one lump-sum payment but it is not uncommon to see agreements that provide for several lump-sum payments paid over time. By fixing compensation at a negotiated amount, lump-sum payments eliminate the need for ongoing monitoring and measurement of the royalty amount. Lump-sum payments also provide certainty to both parties regarding the amount of compensation to be paid, eliminating some risk of subsequent changes in the product market.

Running royalties are payments that are determined by the licensee's sale or use of the licensed product. Often, these royalties are computed as a percentage of sales revenues or, alternatively, on a per-unit basis for licensed products that are sold. Because they are paid periodically, the use of running royalty payments also spread the payment period over time. The continued computation of running royalties imposes monitoring costs on the parties, however. On the other hand, the use of a running royalty can reduce the risk that a party is undercompensated or overcompensated if the actual profitability or popularity of the licensed product differs from the parties' projections at the time of contracting.

The reported licenses were predominately lump sum; however, there was significant variation by PAE type in the form of royalty received. As shown in Table 3.2, more than 99% of the royalties in licenses written by Litigation PAEs were lump sum. This is consistent with the Litigation PAE model because when royalties are paid as a lump sum, the PAE does not need to hire professionals to monitor or enforce the payment of royalties, and they can pass the proceeds along to the controlling entity, if any,

substantial rights," then the patent holder and the exclusive licensee both have standing to sue.), *See also* Vaupel Textilmaschinen KG v. Meccanica Euro Italia SpA, 944 F.2d 870, 873–74 (Fed. Cir. 1991).

²⁴⁰ *See* U.S. Philips Corp. v. Int'l Trade Comm'n, 424 F.3d 1179, 1189 (Fed. Cir. 2005) ("A nonexclusive patent license is simply a promise not to sue for infringement.").

as quickly as possible. For Portfolio PAEs, 83.7% of licensees included only a lump-sum payment, 13.5% had only a running royalty, and 2.8% included both a running royalty and lump-sum component.

Table 3.2: Percentage of Patent Licensing Agreements with Given Characteristics

	Contract Terms			Payment Terms		
	Cross License	Field of Use Restriction	Geographic Restriction	Lump Sum Only	Running Royalty Only	Both Lump Sum and Running Royalty Components
Portfolio PAEs	4.4%	71.8%	6.0%	83.7%	13.5%	2.8%
Litigation PAEs	0.0%	1.9%	1.9%	99.2%	0.3%	0.5%

Note: Total Portfolio PAE licenses reflected in the table is 252 for contract terms and 215 for payment terms (payment terms were calculated only using data for licenses reporting positive revenues). Total Litigation PAE licenses reflected in the table is 2,463 for contract terms and 2,149 for payment terms.

License Terms Typically Extended Until the Licensed Patents Expired

Responding PAEs had to report the dates of termination of all licenses identified on behalf of themselves and their Affiliates.²⁴¹ Most Responding PAEs indicated that their licenses terminated when the licensed patents expired. The prevalence of this contract term was likely due to settled law holding that a patent license that extends beyond the expiration of the licensed patent is unenforceable.²⁴² When the effective date of the license extended beyond patent expiry, it typically extended six years beyond the expiration of the last patent to expire, presumably to address the six-year window for recovering patent damages.²⁴³

²⁴¹ Appendix C: PAE Special Order, Specification H.3.1 (“State the duration of the License agreement?”).

²⁴² See *Brulotte v. Thys Co.*, 379 U.S. 29, 32 (1964) (holding that a patent holder cannot charge royalties for the use of his invention after its patent term has expired); see also *Kimble v. Marvel Ent’t Co.*, 135 S. Ct. 2401, 2405 (2015) (holding same).

²⁴³ 35 U.S.C. § 286 (2012) (“Except as otherwise provided by law, no recovery shall be had for any infringement committed more than six years prior to the filing of the complaint or counterclaim for infringement in the action.”).

Portfolio PAE Licenses Included More Complicated Terms than Litigation PAE Licenses

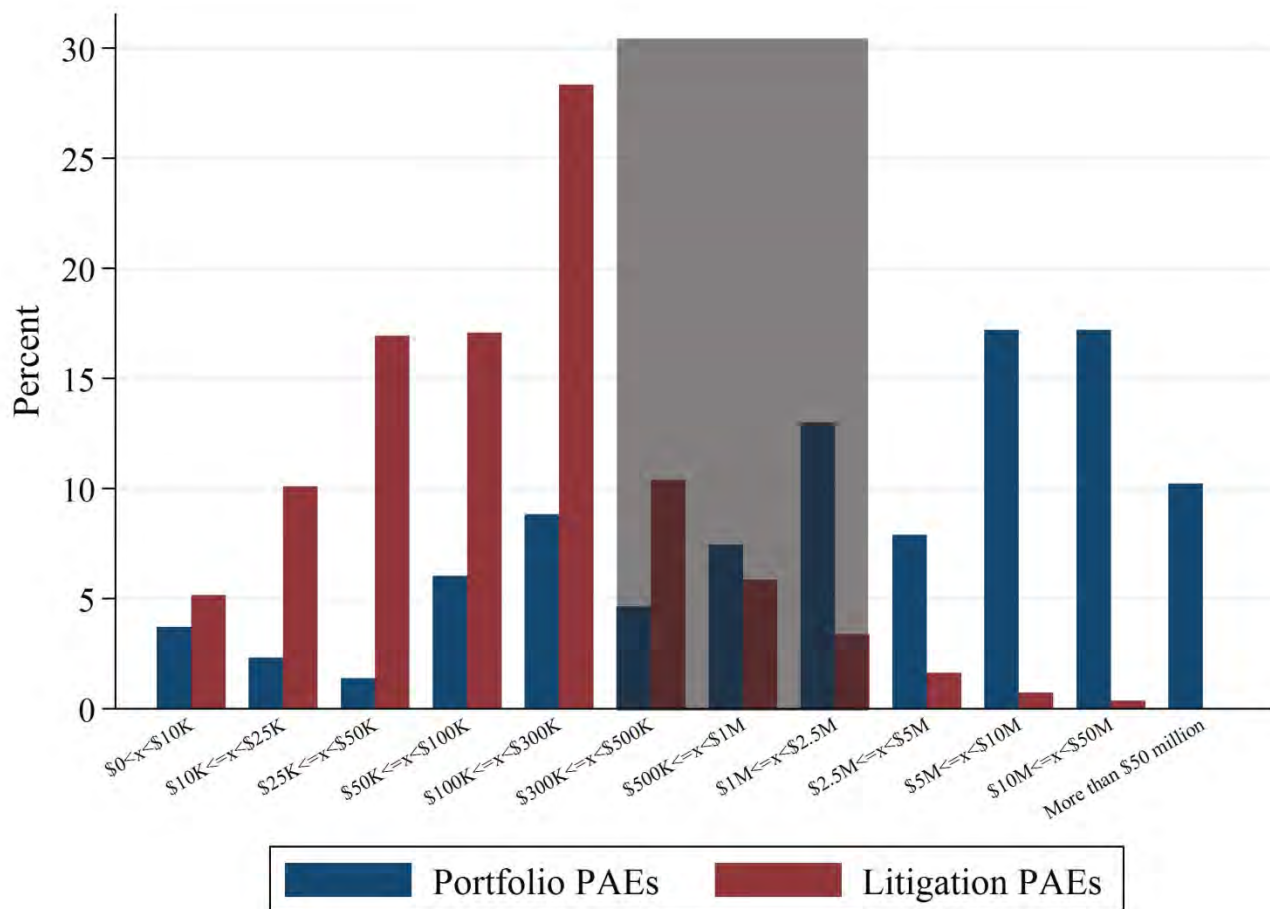
Responding PAEs also identified the scope of licenses that they and their Affiliates executed.²⁴⁴ The contract provisions limiting the scope of the licenses written by Portfolio PAEs and Litigation PAEs differed significantly. Litigation PAEs entered into simple licenses. As shown in Table 3.2, only 1.9% of these license agreements contained any limitations on either the field-of-use or the geographic regions where the licensee could sell the licensed products. By contrast, Portfolio PAEs frequently included limitations on their licenses: 71.8% of licenses contained a field-of-use restriction and 6% of licenses included a geographic restriction. In addition, 4.4% of Portfolio PAE licenses contained a cross-license.

²⁴⁴ Appendix C: PAE Special Order, Specification H.3.m (“State the Licensed products or services.”).

Study PAEs Generated Approximately \$4 Billion in License Revenue During the Study Period

Figure 3.9 presents the frequency distribution of royalty payments for individual patent licenses separately for Litigation PAEs and Portfolio PAEs.²⁴⁵

Figure 3.9: Frequency Distribution of Patent Licensing Royalties



Note: Sample restricted to the 2,364 licenses reporting positive royalty payments, and shaded region corresponds to the licenses that fall within the cost range of defending a NPE litigation through the end of discovery according to the AIPLA.

²⁴⁵ The FTC included only license payments from those agreements reporting positive revenues. This restriction reduces the sample of licenses used in the construction of Figure 3.9 to 215 royalties from licenses written by Portfolio PAEs and 2,149 royalties from licenses written by Litigation PAEs. See Appendix B: Methodology (discussing why Responding PAEs reported receiving no revenue for some of their patent licenses).

Portfolio PAEs wrote relatively few licenses, but these licenses generated relatively large revenues. Figure 3.9 shows that more than 65% of Portfolio PAE license agreements generated royalties of more than \$1 million, and roughly 10% of these licenses generated royalties of more than \$50 million. Litigation PAEs granted far more licenses than Portfolio PAEs did, but their licenses typically generated much lower revenues. More than 30% of Litigation PAE licenses generated less than \$50,000 in revenue and more than 77% of their licenses generated less than \$300,000 in revenue. Thus, while the majority of licenses (65%) written by Portfolio PAEs generated more than \$1 million in revenues, almost all (94%) of the licenses written by Litigation PAEs generated royalties of less than \$1 million.

The Influence of Settlement on Royalty Amount

As noted above, the vast majority of reported licenses for Litigation PAEs settled pending litigation. This fact may have affected the ultimate royalty amount paid to the PAE. As recognized by the Federal Circuit and others, the royalty paid as part of a litigation settlement may reflect both the license value and the parties' desire to avoid continued litigation. The Federal Circuit has recognized that "license fees negotiated in the face of a threat of high litigation costs may be strongly influenced by a desire to avoid full litigation."²⁴⁶ The Supreme Court has reasoned that a "payment of any sum in settlement of a claim for an alleged infringement cannot be taken as a standard to measure the value of the improvements patented."²⁴⁷

Many Study PAE licenses explicitly recited that they were made in settlement of pending lawsuits, often stating that the license payment was not intended to reflect a reasonable royalty for alleged use of the patented technology, but instead was payment to resolve the litigation.²⁴⁸ For the PAE, this provision

²⁴⁶ *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 77 (Fed. Cir. 2012) (quoting *Hanson v. Alpine Valley Ski Area, Inc.*, 718 F.2d 1075, 1078–79 (Fed Cir. 1983); *see also Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1164 n.11 (6th Cir.1978)).

²⁴⁷ *Rude v. Westcott*, 130 U.S. 152, 164 (1889).

²⁴⁸ Often, the licenses specified the dispute by docket number. In addition to identifying litigation, many agreements included terms that required the licensor to dismiss the pending litigation as a condition for royalty payment. Many licenses included language disclaiming the royalty amount as evidence of a negotiated royalty rate. Several agreements explicitly stated that the royalty was set by a desire to avoid the costs of litigation. Other agreements provided a "negotiated" royalty amount and then showed a discount that was applied to reach the actual amount paid. Many licenses also included recitals for both a settlement and a release. In contrast to a license payment, which is for future infringement, a settlement amount may reflect damages owed for past infringement.

likely seeks to avoid the possibility that a court or future licensee would view nuisance-value payments as a measure of a reasonable royalty.

Plaintiffs initiate litigation to obtain nuisance-value settlements in other areas besides patent litigation, such as class actions and securities litigation.²⁴⁹ In nuisance cases, a defendant agrees to a settlement amount that reflects business risk, disruption and forecasted litigation costs.²⁵⁰ Although not all licensees indicated explicitly whether the royalty payment reflected avoided litigation costs, the revenues received in patent licenses, particularly those for relatively small amounts, may have been influenced heavily by the parties' desire to avoid the cost of litigation.²⁵¹ To evaluate the possibility that PAE licenses may reflect nuisance-value settlements, the FTC compared license royalties to the estimated cost of patent litigation. The vast majority of Litigation PAE suits settled early, most frequently before the end of discovery. The AIPLA reported in 2013 that the cost of defending NPE patent litigation through the end of discovery costs between \$300,000 and \$2.5 million, depending on the amount in controversy.²⁵²

Figure 3.9 shades the region that corresponds to the estimated cost of defending a patent infringement action through the end of discovery. This breaks the royalty distribution into three ranges: royalties below the estimated cost of defending a case through the end of discovery, royalties consistent with the cost of defending a case through the end of discovery, and royalties greater than the cost of defending a case through the end of discovery. Of the royalties paid for Litigation PAE licenses, 77% were less than \$300,000 and thus below AIPLA's lowest estimated cost of defending an NPE patent infringement action through the end of discovery in 2013. Only 3% of Litigation PAE royalties were greater than the highest estimated cost of the same activity.²⁵³ By contrast, 78% of Portfolio PAE royalties were greater than or equal to the estimated minimum cost of defending patent litigation through the end of discovery: 53% of Portfolio PAE royalties were greater than \$2.5 million and 25% were between

²⁴⁹ See, e.g., Janet Cooper Alexander, *Do the Merits Matter? A Study of Settlements in Securities Class Actions*, 43 STAN. L. REV. 497 (1991); Robert Bone, *Modeling Frivolous Suits*, 145 U. PA. L. REV. 519 (1997).

²⁵⁰ See generally Hubbard, *supra* note 8; Rosenberg & Shavell (2006), *supra* note 8; Rosenberg & Shavell(1985), *supra* note 8.

²⁵¹ See AIPLA 2013 REPORT OF THE ECONOMIC SURVEY, *supra* note 7, at 35.

²⁵² *Id.*

²⁵³ *Id.*

\$300,000 and \$2.5 million. By these estimates, 77% of Litigation PAEs settlements were valued below an approximate benchmark representing the nuisance value of litigation, while 78% of Portfolio PAE licenses were equal to or greater than the nuisance value of litigation benchmark.

Royalties Paid by Different Licensees for Licenses to Identical Patents Varied Widely

Study PAEs reported receiving widely differing royalties from different licensees for the same set of patents. There are many potential explanations for why the royalties paid for identical patents varied across licensees. Some licensees may have had much higher demand for the patents than other licensees. A licensee with much higher sales of potentially infringing products would have been expected to pay more in a patent license than one with lower sales volumes. Because the majority of licenses reported lump-sum payments without breaking out the royalty rate and the base, it is possible that licensees paid similar royalty rates, but very different lump sums. Licensees may also have differed in bargaining sophistication: some licensees may have been more successful in obtaining a license at a lower royalty. In addition, licensees operating in different industries may have a different willingness to pay for identical patents.

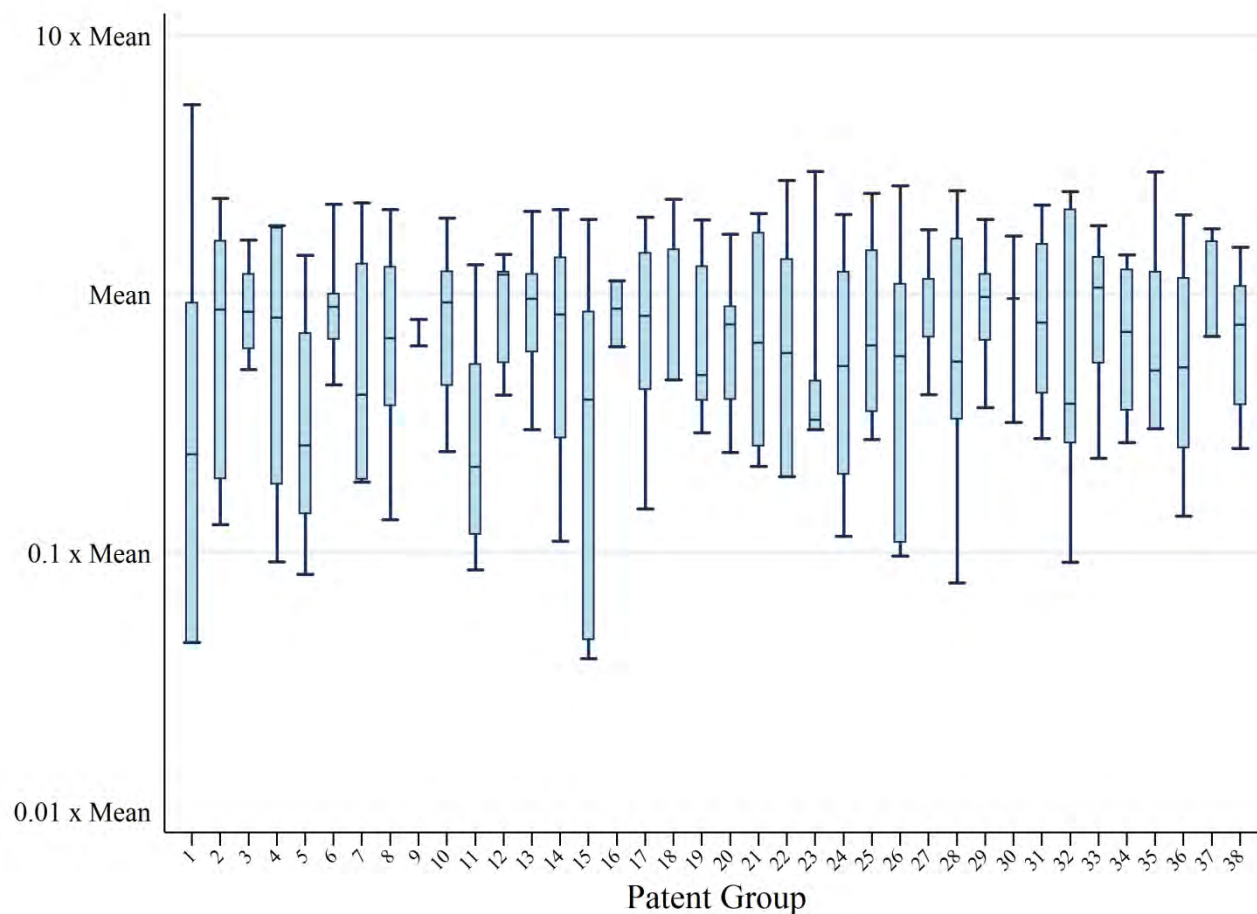
To measure how royalties paid by licensees to Study PAEs varied, the FTC analyzed the variation in royalties where a Study PAE licensed identical patents to a number of licensees. The FTC limited its analysis to instances in which at least ten licensees paid a non-zero royalty to a Study PAE for identical patents in order to have a reasonable sample size to measure dispersion for each unique collection of licensed patents. Moreover, to maintain the anonymity of the licensees and Study PAEs, the FTC scaled each royalty payment by the mean royalty paid for a license for that set of patents.²⁵⁴ We then plotted the 10th, 25th, 50th (median), 75th, and 90th percentiles²⁵⁵ of the scaled royalty distribution separately for each unique set of licensed patents. The royalties paid by different licensees to license identical sets of patents varied dramatically, often by more than a factor of 20. For this reason, we plotted the data using a log-scale for the y-axis; specifically, the unit distance between any two points on the y-axis corresponds to a

²⁵⁴ For example, if the licensee “Intrepid Manufacturing” paid \$500,000 to license patents A, B and C from PAE 1, and if the mean price paid for a license to Patents A, B, and C was \$1,000,000, then the FTC would scale “Intrepid Manufacturing’s” license fee to be 0.5.

²⁵⁵ A percentile is defined as the number in a distribution that causes that percentage of observations to fall below that number. For example, if 10 is the 50th percentile of a distribution, then 50% of the numbers in that distribution are less than 10.

factor of 10. This analysis included 902 royalty payments made to 14 different Study PAEs, which licensed 38 unique sets of patents.²⁵⁶

Figure 3.10a: Dispersion of Licensing Royalties Paid for Identical Sets of Patents



Note: Each Patent Group consists of a set of at least ten licenses reporting positive royalties where all licenses correspond to the same set of patents. The midline of a box corresponds to the median, the blue box represents the 75th and 25th percentiles and the outermost lines (in bold) represent the 90th and 10th percentiles of the distribution of royalties for a given Patent Group. Figure depicts 902 royalty payments made to 14 different Responding PAEs licensing 38 unique sets of patents.

²⁵⁶ The vast majority of the licenses included in this analysis (87% across Study PAEs) generated royalties below \$300,000 (the AIPLA's estimated lower bound on cost of defending a case through the end of discovery). Only five of the 38 groups of patents had a mean license royalty of more than \$300,000, and only one group had a median license royalty over \$300,000. Given the relatively low magnitude of the studied royalty payments, it may be the case that variability in the willingness to avoid litigation played a larger role in generating variation in licensing fees than variation in the willingness to pay for the licensed patents. AIPLA 2013 REPORT OF THE ECONOMIC SURVEY, *supra* note 7, at 35.

The results are presented in Figure 3.10a. Each column corresponds to the frequency distribution of patent royalties paid for one of the 38 unique sets of patents used in the analysis. In the figure, the upper and lower hash marks correspond to the 90th and 10th percentiles of the royalty distribution, while the upper and lower edges of the light blue boxes correspond to the 75th and 25th percentiles. A line within the blue box denotes the median (50th percentile) of the royalty distribution. For the first group of patents (denoted 1 on the x-axis), the 90th percentile was 5.4; that is, 90% of patent licensees for this set of patents paid royalties less than 5.4 times the mean, and 10% of patent licensees paid royalties greater than 5.4 times the mean. The 75th, 50th, 25th, and 10th percentiles for patent group 1 correspond to 0.92, 0.24, 0.05, and 0.05 times the mean, respectively.²⁵⁷

Figure 3.10a shows that the variability in royalty paid varied dramatically across patent groups. For example, for patent group 9 there was very little variability in the patent royalty paid by licensees. The 25th, 50th, 75th, and 90th percentiles were identical, and the 10th and 90th percentiles only varied by 17% of the mean royalty paid for the patents in group 9. By contrast, for patent group 14, the difference in the royalty paid for the 90th and 10th percentiles varied by a factor of nearly 20; that is, the 10% of licensees that paid the highest royalties for a license to the patents in group 14 paid 20 times more than the 10% of licensees paying the lowest royalties.

Figure 3.10a shows that a small number of licensees paid royalties much larger than the mean royalty, and a substantial majority of licensees paid royalties lower—often much lower—than the mean royalty paid.²⁵⁸ Across all 38 groups of patents, roughly 11% of licensees paid more than twice the average royalty paid for a given set of patents, while 65% paid less than the average royalty. In fact, 34% paid a royalty less than half of the mean royalty, and 14% paid a royalty less than one quarter of the mean royalty.

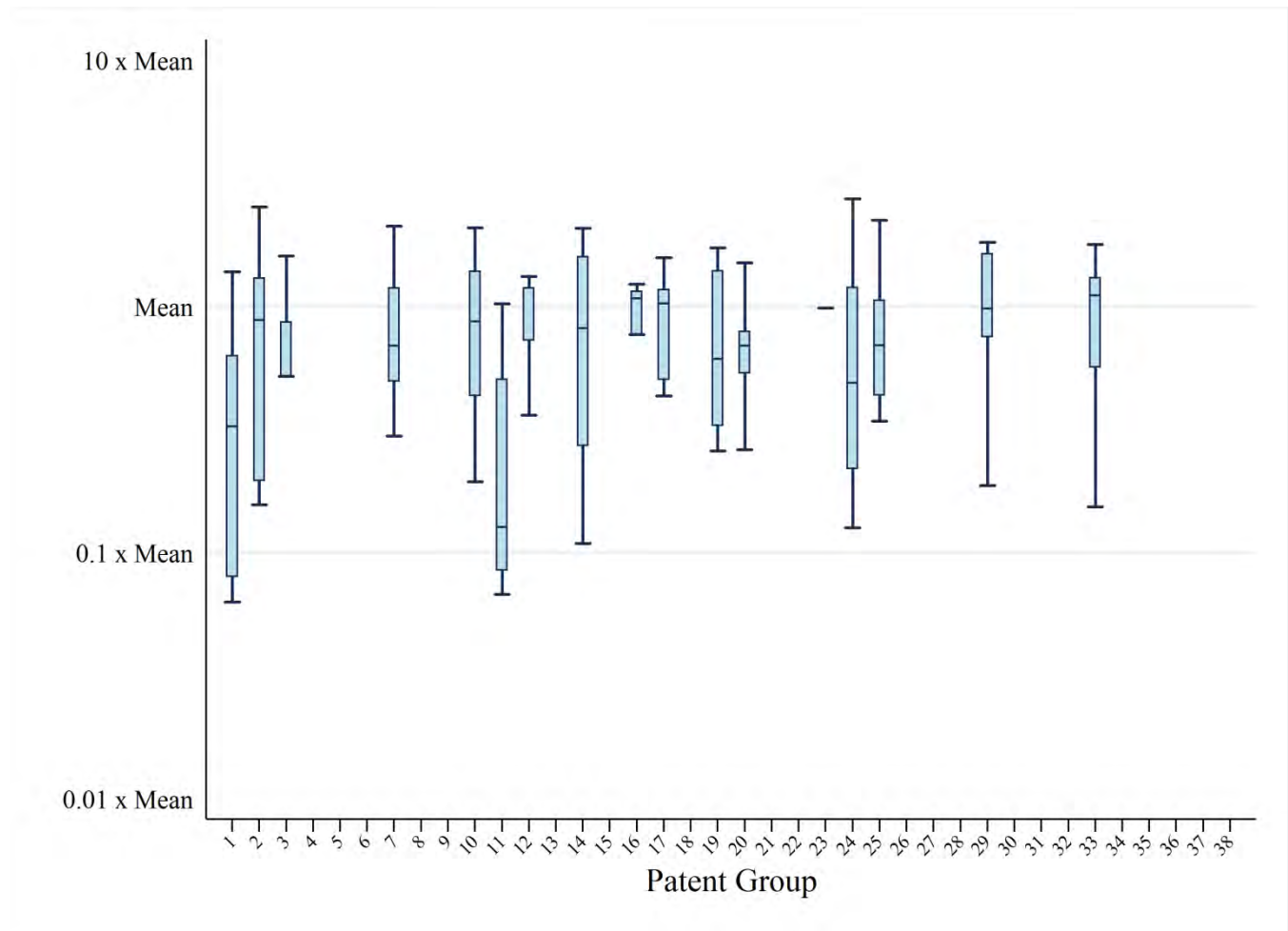
As noted above, there were many reasons why different licensees may have paid different royalties for an identical set of patents. Licensees operating in different industries, for example, may have had a different willingness to pay for identical patents. Hence, some of the variation in patent royalties seen in

²⁵⁷ The 10th and 25th percentiles correspond to the same value; that is, those patent licenses generated the same royalty payment to the PAE.

²⁵⁸ The median patent royalty was almost always lower than the mean patent royalty.

Figure 3.10a could be the result of licensees operating in different industries. To examine this possibility, we also measured the variability in patent royalties for licensees of identical patents that operated in the same industry. To conduct this analysis, we applied the methodology used to construct Figure 3.10a to the subset of licenses in the industry with the largest number of licenses for a given set of patents, and required there to be at least ten licenses with positive royalty payments in the industry with the largest number of licenses. This restriction reduced the sample to 17 sets of licensed patents from nine different Study PAEs. Figure 3.10b shows the results.

Figure 3.10b: Dispersion of Licensing Royalties Paid for Identical Sets of Patents: Limited to Licensees in the Same Industry



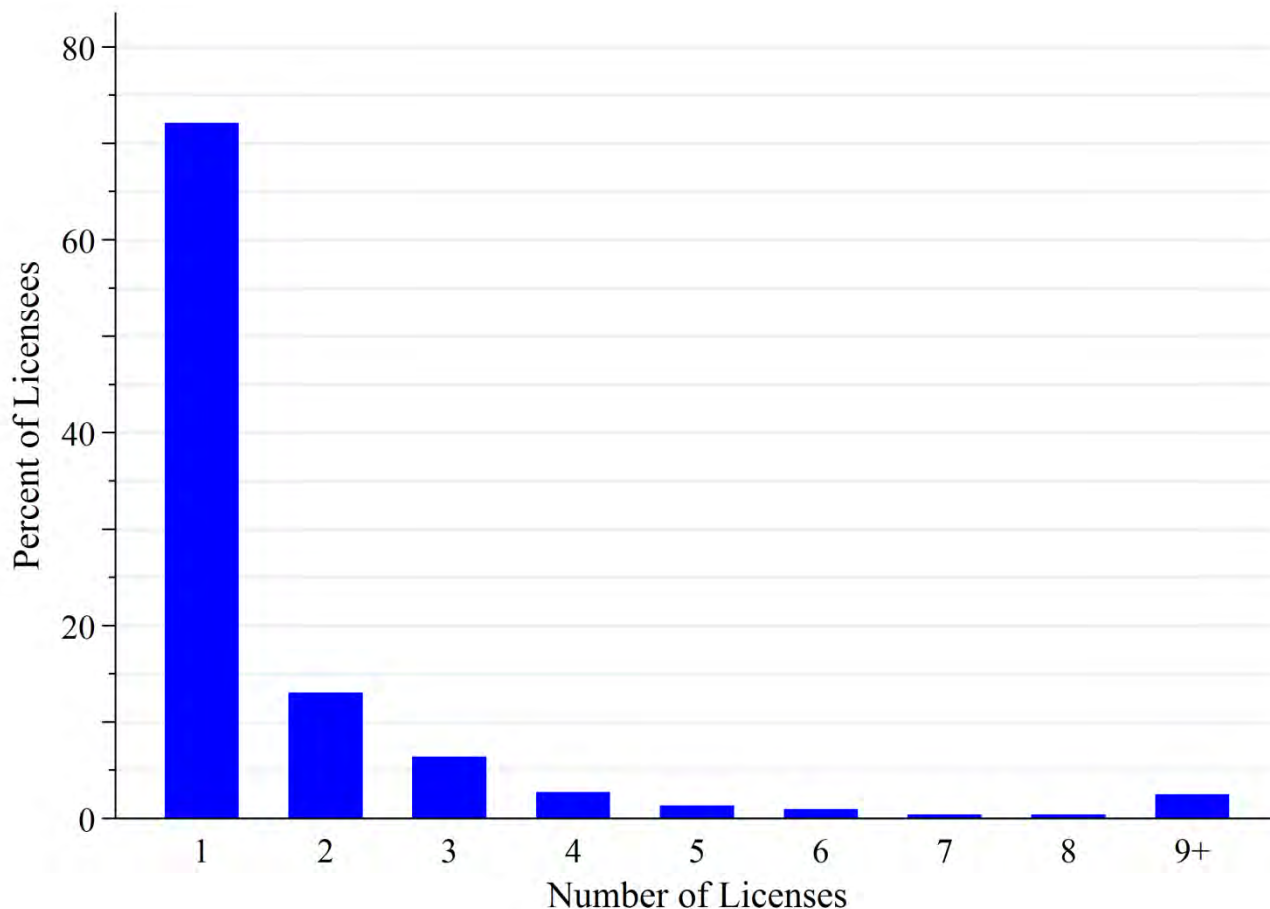
Note: Each Patent Group consists of a set of at least ten licenses reporting positive royalties where all licenses correspond to the same set of patents licensed to firms operating in the same industry. The midline of a box corresponds to the median, the blue box represents the 75th and 25th percentiles and the outermost lines (in bold) represent the 90th and 10th percentiles of the distribution of royalties for a given Patent Group. See the Methodological Appendix for a description of how firms are assigned industries. Figure depicts 364 royalty payments made to nine different Responding PAEs.

To facilitate a comparison of the findings corresponding to licenses within a single industry to those from the overall sample shown in Figure 3.10a, we plotted the results in Figure 3.10b with the same ordering of the groupings of licensed patents along the x-axis. For example, the set of licensed patents corresponding to group 1 in Figure 3.10a is identical to the set of licensed patents shown in group 1 in Figure 3.10b. Not surprisingly, in most cases, there was less variation in patent royalties among licensees within the same industry.²⁵⁹ However, there was still frequently substantial variation in the royalties paid by licensees within the same industry. For example, in group 1 the 90th percentile was 1.4 (10% of the licensees in the industry paid a royalty at least 1.4 times the mean), and the 25th percentile was 0.08 (25% of licensees in the industry paid a license fee of less than 8% of the mean). Although this variation was less than that observed for all licensees of the patents in group 1, it was still substantial. Thus, even when limiting the licensees to those operating within the same industry, licensees of identical patents frequently paid very different royalty amounts.

Study PAE Licensees

The impact of the observed PAE licensing behavior appeared to be concentrated among a small set of firms. Study PAEs produced data corresponding to 2,715 licenses and approximately 1,400 individual licensees. Notably, most licensees appeared as a party to only one license in the study data. A small number of firms, however, entered into multiple licenses with the Responding PAEs or their Affiliates. This can be seen in Figure 3.11 which shows the frequency with which a given licensee entered into a license with any Study PAE. For example, while more than 70% of licensees had only one license with any Study PAE, roughly 2% of licensees entered into more than nine licenses with Study PAEs.

²⁵⁹ For example, the differences between the 75th and 25th percentiles and the 90th and 10th percentiles of the licensing distributions were smaller in most cases when licensees were in the same industry (Figure 3.10b) than when licensees operate in different of industries (Figure 3.10a). There were, however, two cases where the variation in license fees increased when we limited the analysis to measuring dispersion within a single industry. For groups 10 and 29, the differences between the 75th and 25th percentiles and the 90th and 10th percentiles were larger within the industry with the most licenses when compared to the larger sample (which contained licenses from licensees operating in multiple industries). In three instances the difference between the 75th and 25th percentiles increased (patent groups 12, 24, and 33) while the difference between the 90th and 10th percentiles decreased, and in three instances the difference between the 90th and 10th percentiles increased (patent groups 11, 10, and 19) while the difference between the 75th and 25th percentiles decreased.

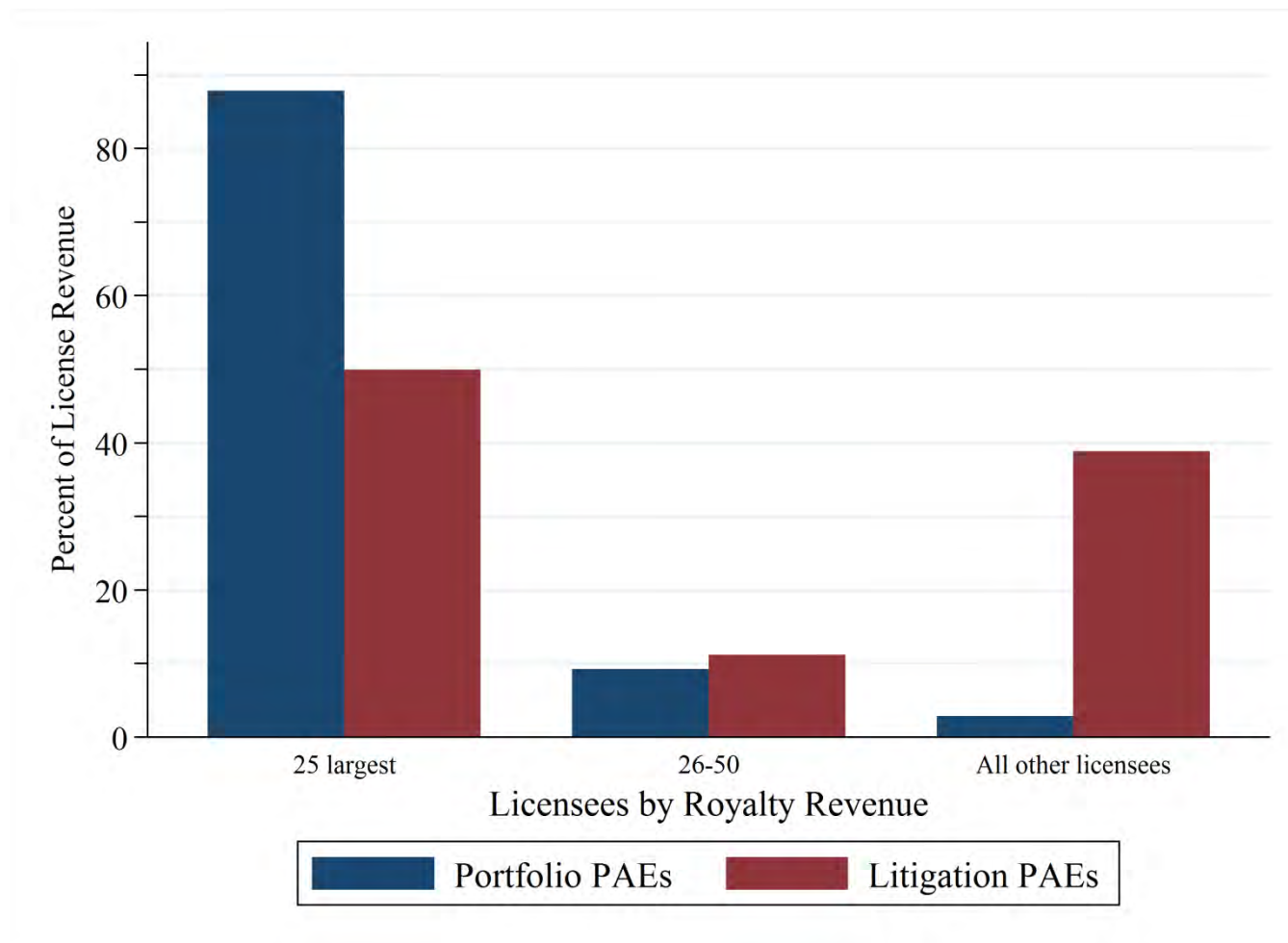
Figure 3.11: Number of Licenses Involving a Given Licensee

Note: Figure represents 1,463 firms that are licensees.

A Few Licensees Paid Most of the Royalties

A relatively small number of the approximately 1,400 licensees observed in the Study Data accounted for the vast majority of royalties paid to Study PAEs. Figure 3.12 presents the share of revenue generated by the Study PAE licensees who paid the largest royalties. The concentration of royalties paid was most pronounced for Portfolio PAEs. The top twenty-five largest revenue Portfolio PAE licensees generated 87% of revenues, the 26th–50th largest revenue licensees generated only 10% of revenues, and the remaining Portfolio PAE licensees accounted for only 3% of revenues. By contrast, the top twenty-five licensees that paid the largest royalties to Litigation PAEs accounted for roughly half of Litigation PAEs revenue.

Figure 3.12: Percentage of Licensing Revenue Generated by Licensees Paying the Largest Royalties



Note: Sample restricted to the 2,364 licenses reporting positive royalty payments. Largest licenses by revenue are calculated separately for Portfolio PAE and Litigation PAE.

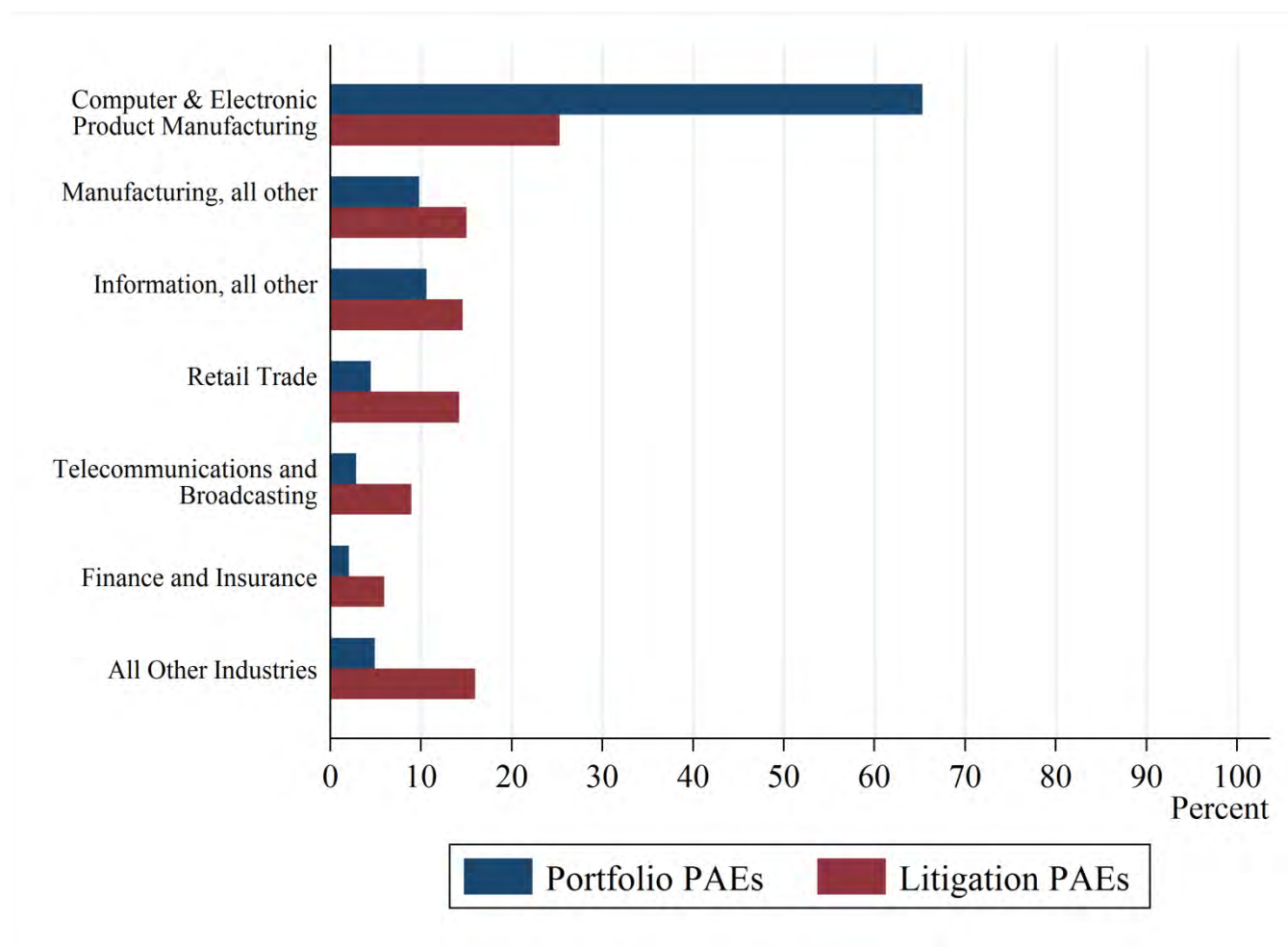
Industries of Licensees

Although Study PAE licensees spanned multiple industries, they were concentrated in the “Computer & Electronic Product Manufacturing” industry. Figure 3.13 presents the distribution of industries in which Portfolio and Litigation PAE licensees operated.²⁶⁰ Figure 3.13 shows that Study PAE licensees most frequently participated in manufacturing industries: 75% of Portfolio PAE licensees and 40% of Litigation PAE licensees operated in the “Computer & Electronic Product Manufacturing” and “Manufacturing, all other” industries. Additionally, Litigation PAEs

²⁶⁰ See Appendix B: Methodology (describing how the FTC assigned licensees to industries).

granted licenses to firms operating in a much more diverse set of industries than Portfolio PAEs. In particular, Litigation PAEs licensees operated with more relative frequency in non-manufacturing industries. Approximately 14% and 6% of the licensees of Litigation PAEs operated in the “Retail Trade” and “Finance and Insurance” industries, respectively. By contrast, about 4% and 2%, respectively, of the licensees of Portfolio PAEs operated in the “Retail Trade” and “Finance and Insurance” industries. The licensees paying the highest licensing revenues most frequently operated in the “Computer & Electronic Product Manufacturing” industry. For example, more than 50% of the top twenty-five largest revenue Litigation PAE and Portfolio PAE licensees operated in the “Computer & Electronic Product Manufacturing” industry.

Figure 3.13: Industries Of Licensees



Note: See the Methodology Appendix for a description of how firms are assigned to industries. The “Information, all other” industry includes, but is not limited to, firms operating as Software Publishers, Motion Picture and Sound Recording firms, and Internet Publishing and Broadcasting and Web Search Portal firms. Figure depicts 245 Portfolio PAE licenses and 2,388 Litigation PAE licenses.

Revenue Sharing with Inventors

PAEs acquire patents from different types of firms, including operating companies, the inventor (or employer of the inventor) of the patent, or intermediaries that purchased the patent from its original owner. In addition, PAEs can use different methods to compensate the previous patent owner. For example, within this study, Litigation PAEs usually paid for patents by promising to pay the previous patent owner a fraction of their future licensing revenue, whereas Portfolio PAEs made greater use of up-front, lump sum, payments in their patent acquisitions. Commenters have suggested that PAEs act as an intermediary for inventors who may not otherwise be able to negotiate on their own behalf.²⁶¹ The FTC solicited information regarding this suggestion and observed that more than half of Study PAEs reported either acquiring patents from their inventor or the employer of the inventor. In addition, the FTC found that roughly half of the Study PAEs reported sharing a fraction of their licensing revenue with their inventor or the employer of the inventor. However, because of significant differences in how Study PAEs maintained their data on these practices, the FTC does not quantify the frequency or magnitude of revenue sharing with independent inventors.

Conclusion

The FTC sought to develop a better understanding of how PAEs generate revenue from their patents through demands, litigation, and licensing. We found that the PAE Affiliates described in Chapter 2 actively sent demands, litigated, and licensed. We also found that, as a general matter, the impact of assertion behavior was highly skewed; only a small number of entities were frequent targets of Study PAE activity. Most of the assertion activity was concentrated in a small number of industries. Specifically, Study PAEs focused most of their patent assertion activity on companies engaged in manufacturing—especially “Computer and Electronics Product Manufacturing.” Study PAEs, particularly Litigation PAEs, also asserted patents against firms in the “Retail Trade” industry, which were likely the end-users of asserted products.

²⁶¹ See, e.g., Public Comment from Barry Leff, IPNav, to the FTC & DOJ Patent Assertion Entity Activities Workshop 3 (Feb. 21, 2013), www.justice.gov/atr/public/workshops/pae/comments/paew-0010.pdf; Transcript of PAE Activities Workshop, *supra* note 148, at 112 (testimony of C. Graham Gerst, Partner, Global IP Law Grp.) (large practicing entities refuse to negotiate with small tech companies, small individual inventors, over licenses); *id.* at 48 (testimony of Paul Melin, Chief IP Officer, Nokia) (noting “a sense of entitlement” toward patents).

Turning to specific assertion behavior, the FTC did not observe demand-letter campaigns that, without litigation, led to low-revenue licenses. Instead, the overwhelming majority of reported licenses followed a patent infringement suit against the potential licensee. The FTC likewise observed Litigation PAE behavior that was consistent with nuisance-value litigation; of all reported Litigation PAE licenses, 93% followed a lawsuit against the eventual licensee, and more than 75% were valued at less than the AIPLA's estimated discovery costs. In addition, when licenses followed litigation, those litigations tended to settle early; of the cases that settled, 34% settled within six months of filing, 66% within one year, and 83% within 18 months. Finally, we found that the royalties paid by different licensees for licenses covering identical patents varied widely.

Chapter 4: Wireless Case Study

Introduction

In addition to examining how Study PAEs asserted their patents, the FTC also examined whether and how Study PAE assertion behavior differs from that of non-PAE licensors. PAE business models differ from the business models of other patent licensors. PAEs are unlike manufacturers because they do not make or sell products. Unlike both manufacturers and NPEs, PAEs generally do not engage in any research and development activity or conduct *ex ante* technology transfer.²⁶² As a result, PAEs likely face different litigation risks relative to manufacturers and NPEs, and those differences may affect their assertion behavior.

For example, because PAEs generally do not engage in manufacturing or research and development, they do not have business operations that litigation may interrupt. Further, PAEs likely have fewer business documents to search for, review, and produce in litigation discovery. Consequently, manufacturers and NPEs likely face more discovery burden and risk of business disruption than PAEs. Because PAEs do not manufacture products, they are largely immune to patent-infringement countersuit. Moreover, because they do not face the reputational concerns of manufacturers or NPEs, they may be more likely to sue customers and end-users of technology for patent infringement instead of or in addition to upstream manufacturers that incorporate the accused technology into products.²⁶³

²⁶² NPEs include patent holders that primarily seek to develop and transfer technology. See FTC EVOLVING IP MARKETPLACE REPORT, *supra* note 1, at 8 n.5. The NPEs in this study conducted research and developed technologies related to wireless chipsets. They applied for, and were granted, patents covering those technologies.

²⁶³ See Erica S. Mintzer and Suzanne Munck, *The Joint U.S. Department of Justice and Federal Trade Commission Workshop on Patent Assertion Entity Activities—“Follow the Money,”* 79 ANTITRUST L.J. 423, 426 (2014) (discussing comments and participants at the FTC and DOJ 2012 workshop on PAE activity and observing that “in contrast to operating companies ... [PAEs] do not have the reputational constraints that may diminish an operating company’s incentive to litigate”). Indeed, if anything, PAEs may capitalize on their development of a *negative* reputation for being litigious as a strategy of persuading firms to accept their licensing demands. Hovenkamp, *supra* note 92, at 2 (“Rather, it is part of a calculated reputation building strategy of predatory patent litigation under which a PAE follows through on its seemingly irrational litigation threats in order to develop a litigious reputation that persuades future targets to accept licensing demands they would ordinarily reject based on a belief that the litigation threat is non-credible.”).

The preceding considerations have led some to suggest that PAEs may be more aggressive than either manufacturers or NPEs in litigating their patents.²⁶⁴ To address whether PAEs assert patents differently than manufacturers or NPEs, this chapter compares and contrasts the behavior of Study PAEs, manufacturers, and NPEs within the wireless chipset sector.²⁶⁵ As described in Chapter 3, the FTC broadly examined Study PAE assertion behavior involving patent holdings across multiple technologies. The FTC then focused on the behavior of the same Study PAEs with respect to their assertion of wireless patents only, which this chapter reports.²⁶⁶ The FTC chose the wireless chipset sector because it is a relatively well-defined industry with a significant amount of assertion activity by PAEs, manufacturers, and NPEs. Furthermore, a relatively small number of manufacturers account for the vast majority of worldwide sales in this sector.²⁶⁷ Finally, focusing on a single technology sector allowed the FTC to examine behavioral differences resulting from different business models, as opposed to behavioral differences resulting from technology sectors with different characteristics.²⁶⁸

The Wireless Case Study includes information describing more than 1,700 demands, 650 distinct cases, and 1,000 patent licenses related to wireless patents. The economic impact of the assertion studied is substantial given the proliferation of wireless communication devices. While only about 20% of the

²⁶⁴ See, e.g., Scott Morton & Shapiro, *supra* note 2; Hovenkamp, *supra* note 92, at 2.

²⁶⁵ The FTC sent Special Orders to ten manufacturers and six NPEs active in the wireless chipset sector. The FTC allowed one pair of NPE firms to submit a joint response because their activities were closely related. Furthermore, two manufacturers did not have sufficient reportable information. As a result, this Chapter reports on eight manufacturers and five NPEs. In this report, “Wireless Manufacturers” and “NPEs” refers to these responding firms. See Appendix A: Glossary of Frequently Used Terms; see also Appendix D: Wireless Case Study Special Order (reproducing the Special Order sent to Wireless Manufacturers and NPEs). Unless otherwise noted, the Wireless Case Study discusses Study PAE assertion of wireless patents only. See Appendix A: Glossary of Frequently Used Terms.

²⁶⁶ See Appendix A: Glossary of Frequently Used Terms. “Wireless patent” means any patent asserted against a wireless communication device. “Wireless communication device” means any device, including wireless chipsets, which implements wireless communication, including, but not limited to, software, user equipment, base stations, and network infrastructure. *Id.*

²⁶⁷ The eight Wireless Manufacturers included in the study collectively produce approximately 90% of the wireless chipsets sold worldwide. See, e.g., Brad Shaffer, *Flexibility and Technology Leadership All Important as Challenges Persist in Digital Baseband Market*, IHS MARKIT (Feb. 19, 2016), <https://technology.ihs.com/573534/flexibility-and-technology-leadership-all-important-as-challenges-persist-in-digital-baseband-market> (reporting market shares for baseband processors—one type of wireless chipset).

²⁶⁸ While the Wireless Case Study was designed to focus on differences in business models between PAEs, NPEs, and Wireless Manufacturers, we found that the sample of NPEs did not appear to use a uniform business model. The patent assertion behavior of some NPEs appeared quite similar to that of Portfolio PAEs and Manufacturers while the patent assertion behavior of other NPEs appeared more similar to that of Litigation PAEs.

patent licenses written by Study PAEs included wireless patents, those that did were much more valuable than the average patent license in the study. Among all licenses reported to the FTC, about one third of Litigation PAE revenues and more than 75% of Portfolio PAE revenues related to licenses that included wireless patents. Wireless Manufacturer and NPE wireless licenses were economically important and together accounted for more than the \$4 billion earned by Study PAEs across all technologies combined.

Study PAE, Wireless Manufacturer, and NPE assertion strategies and licenses for wireless patents varied in important ways. While some Wireless Manufacturers actively asserted their patents using a strategy similar to that of Portfolio PAEs, other Wireless Manufacturers chose not to assert their patents at all or did so only through low- or zero-royalty bearing licenses. There was also remarkable variation in how NPEs asserted their patents. Some NPEs pursued an assertion strategy very similar to that of Litigation PAEs (i.e., using litigation to generate most of their license agreements), while others operated more like Portfolio PAEs (i.e., negotiating many licenses without resorting to litigation).

Wireless Manufacturers and NPEs in the Wireless Case Study sent nearly three times as many demand letters as Study PAEs combined. Wireless Manufacturers and Portfolio PAEs directed their demands relating to wireless patents to more firms operating in the “Computer & Electronic Product Manufacturing” and “Manufacturing, all other” industries than NPEs and Litigation PAEs. The litigation activity of Litigation PAEs, however, dwarfed that of all other Wireless Respondent types combined.²⁶⁹

The content and structure of patent license agreements varied in important ways by Wireless Respondent type. Wireless Manufacturers tended to write the most complex licenses, which could include cross-licenses, field-of-use restrictions, and relatively complicated payment terms (e.g., running-royalties), while Litigation PAEs wrote very simple licenses containing few restrictions and basic payment terms (e.g., lump-sum payments). Similar to the observations of Chapter 3, Portfolio PAE licenses involving wireless patents were more complex than Litigation PAE licenses involving wireless patents. NPEs did not take a uniform approach to patent licensing. A number of them wrote patent licenses very similar in content and structure to those of Litigation PAEs, while others wrote patent licenses that were more similar in content and structure to those of Portfolio PAEs or Wireless Manufacturers.

²⁶⁹ Wireless Manufacturers, NPEs, and Study PAEs asserting wireless patents are collectively referred to as “Wireless Respondents.” See Appendix A: Glossary of Frequently Used Terms.

Chapter 4 first describes how Wireless Respondents sent demands. It then discusses their litigation activity and examines their licensing behavior. Finally, the chapter summarizes how Study PAE assertion behavior relating to wireless patents compares to the assertion behavior of other Wireless Respondents. The discussion in this chapter supports the FTC’s conclusion that Litigation PAEs asserted their patents differently than Wireless Manufacturers, while Portfolio PAE and NPE behavior fell between these two extremes.

Wireless Respondents’ Demand Activity

This section compares the demand behavior of Study PAEs, Wireless Manufacturers, and NPEs relating to wireless patents. First, it describes how overall demand activity varied by Wireless Respondent type. It then explains how frequently individual target firms received demands from Wireless Respondents. Finally, it identifies the industries that received the most demands from Wireless Respondents.

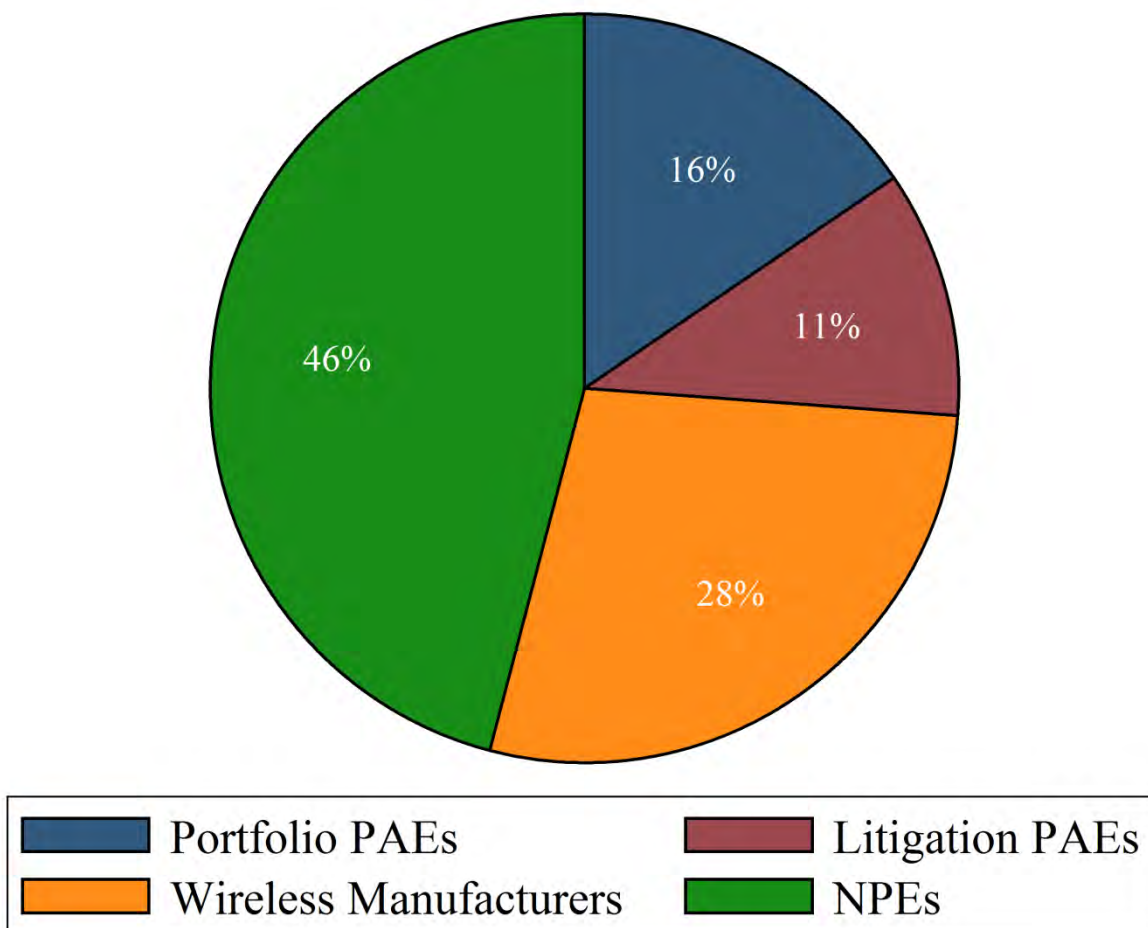
Wireless Manufacturers and NPEs Sent More Demands than Study PAEs

The FTC asked Wireless Respondents to provide the first demand relating to wireless patents that they, or their Affiliates, sent to each target during the study period.²⁷⁰ Fifteen Wireless Respondents reported 1,716 wireless patent demands. Of these 15 Wireless Respondents, four were Wireless Manufacturers, four were NPEs, two were Portfolio PAEs, and five were Litigation PAEs.²⁷¹

²⁷⁰ See Appendix C: PAE Special Order, Specification H.1; Appendix D: Wireless Case Study Special Order, Specification E.1.

²⁷¹ In addition to these 15 Wireless Respondents, one Portfolio PAE and one Litigation PAE reported filing wireless patent infringement lawsuits, but did not report sending demands that specifically identified a wireless patent. While the initial demands sent by these two Study PAEs neither referred to, nor were identified as relating to, a wireless patent, these Study PAEs were likely attempting to license wireless patents given the subsequent litigation. However, because these demands neither referred to, nor were identified as relating to, a wireless patent, the analysis in this chapter did not include them.

Figure 4.1: Relative Proportion of Wireless Patent Demand Letters



Note: The total number of wireless patent demands sent by PAEs, NPEs, and Wireless Manufacturers is 1,716.

Figure 4.1 breaks down the share of demands by Wireless Respondent type. The responses showed that Wireless Manufacturers and NPEs sent 28% and 46%, respectively, of the demands reported in the Wireless Case Study, which is far more demands than what Study PAEs sent. Notably, two Wireless Respondents—a Wireless Manufacturer and an NPE—sent nearly half of all the demands. Wireless Manufacturers and NPEs did not report using multiple Affiliates to assert patents. Only one Responding PAE identified multiple Affiliates that had sent demands relating to wireless patents, with this Responding PAE identifying only three Affiliates.

A Small Number of Targets Received Multiple Demands

Typically, targets received only one demand from any Wireless Respondent during the study period, but a small number of targets received multiple demands. Wireless Respondents sent demands to 1,476 different recipients.²⁷² Fewer than 10% of the demand recipients received more than one demand, and only five demand recipients received more than five demands. The most demands received by any one recipient was ten. Only one Responding PAE identified multiple Affiliates that had sent demands related to wireless patents, so it was not surprising that only a few recipients received demands from multiple Affiliates of the same Responding PAE.²⁷³

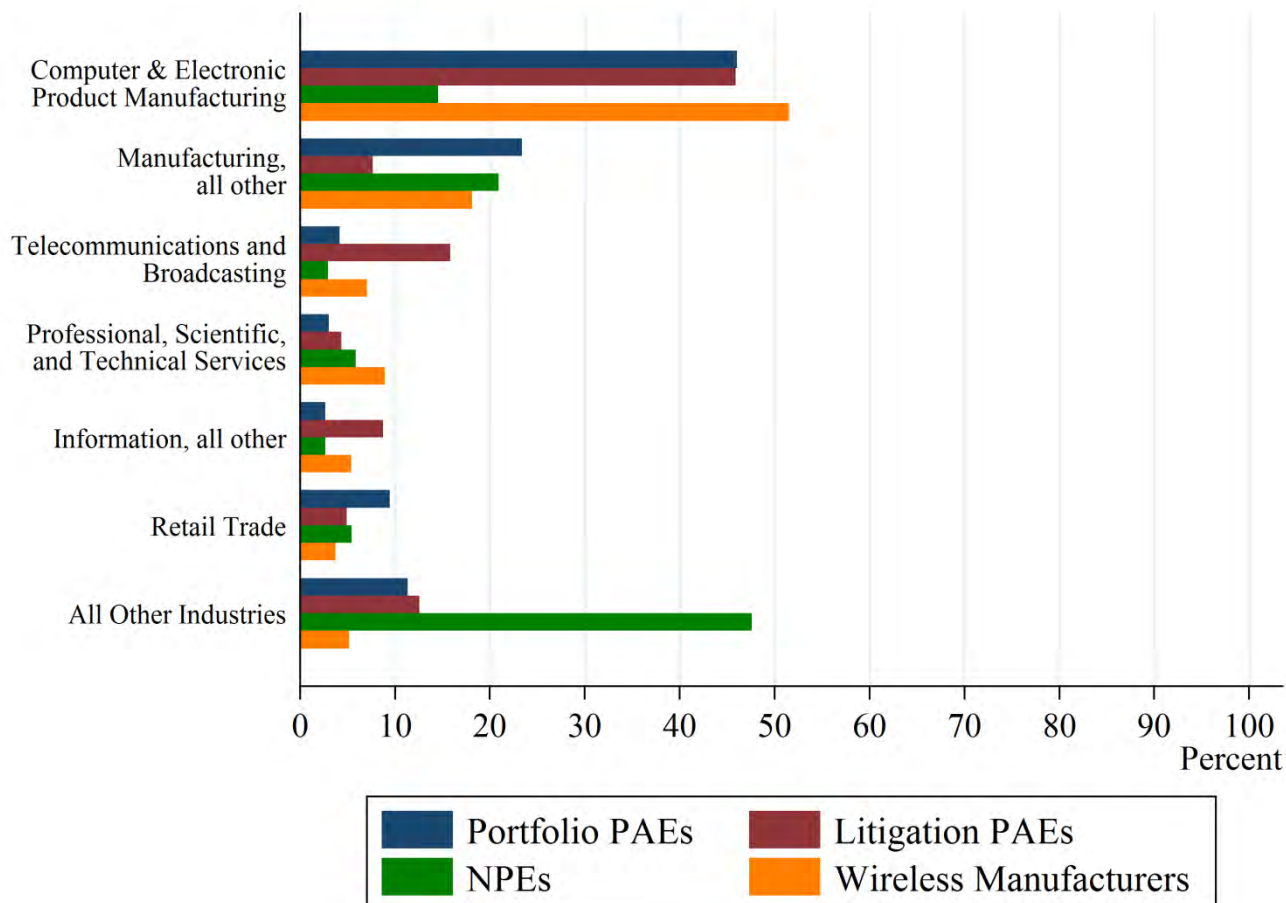
Wireless Respondents Sent Demands to Different Industries

In Chapter 3, we reported that both Litigation and Portfolio PAEs sent demands to likely end-users of technology, but that this practice was more common among Litigation PAEs. Figure 4.2 shows by Wireless Respondent type the industries in which demand recipients operated.²⁷⁴ Surprisingly, given the study's focus on the wireless chipset sector, only 46% of demand recipients were concentrated in the "Computer & Electronic Product Manufacturing" industry—the industry most closely associated with wireless chipsets. The expansion of wireless technologies to uses outside of traditional computer and electronics products has created the potential, it would seem, for a large number of demand recipients in other manufacturing industries. Adding the industry category, "Manufacturing, all other," however, increased the share of demand recipients to only 63% suggesting, as reported in Chapter 3, that a large number of demand recipients may have been customers or end-users of the technology.

²⁷² See Appendix B: Methodology (describing the methodology used to identify unique demand recipients).

²⁷³ Only three target firms received demands from multiple Affiliates of the same Responding PAE. Each of these firms received demands from two Affiliates. Three Affiliates in total were responsible for the demands sent to these three firms.

²⁷⁴ See Appendix B: Methodology (describing the methodology used to assign demand recipients to industries).

Figure 4.2: Industries Subject to Wireless Patent Demands

Note: See Appendix B for a description of how firms are assigned to industries. The “Information, all other” industry includes, but is not limited to, firms operating as Software Publishers, Motion Picture and Sound Recording firms, and Internet Publishing and Broadcasting and Web Search Portals firms. Figure depicts 265 Portfolio PAE demands, 183 Litigation PAE demands 750 NPE demands, and 425 Wireless Manufacturer demands.

The industries in which demand recipients operated varied significantly by Wireless Respondent type. For Portfolio PAEs and Wireless Manufacturers, nearly 70% of the demand recipients operated in either the “Computer & Electronic Product Manufacturing” industry or the “Manufacturing, all other” industry. Both Portfolio PAEs and Wireless Manufacturers sent a non-trivial percentage of demands to recipients in other industries. Of the firms that received demands relating to wireless patents from Portfolio PAEs, 9% operated in the “Retail Trade” industry.

For Litigation PAEs and NPEs, 54% and 36% of demand recipients, respectively, operated in either the “Computer & Electronic Product Manufacturing” industry or the “Manufacturing, all other” industry.

These percentages suggest that both Litigation PAEs and NPEs sent a fair share of demands to firms that may have been customers or end-users of the allegedly infringing product or technology. For example, 16% of Litigation PAE demand recipients operated in the “Telecommunications and Broadcasting” industry and 18% of NPE demand recipients operated in the “Transportation and Warehousing” industry.

Wireless Respondents’ Litigation Activity

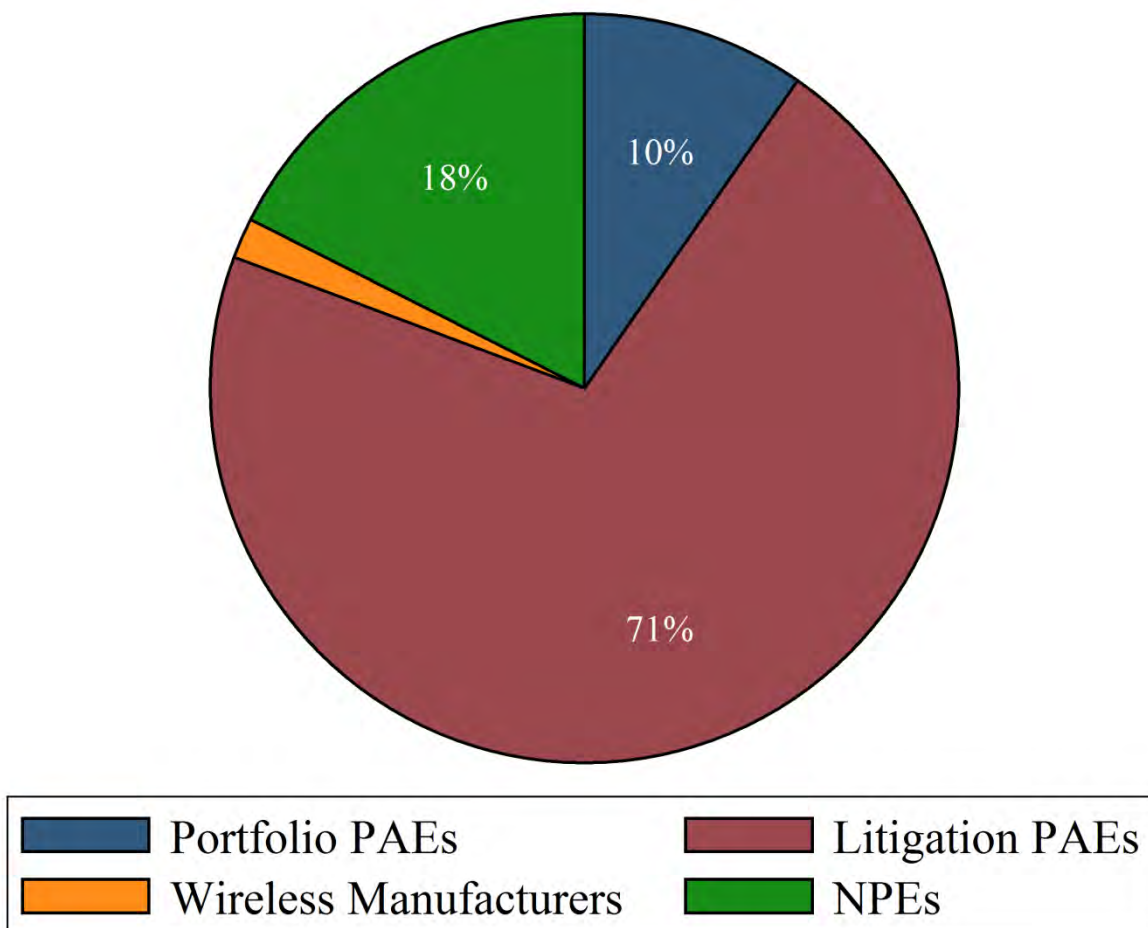
This section compares Wireless Respondents’ litigation behavior. First, it reports on overall litigation activity by Wireless Respondent type. Then it compares case outcomes, and the extent to which Wireless Respondents used contingency fee counsel, specifically reporting on the percentage of cases that terminated and the percentage of terminated cases that settled; whether courts awarded damages, assessed fees, or issued sanctions; and the duration of settled cases.²⁷⁵ Finally, it breaks down the industries of defendants by Wireless Respondent type.

Wireless Manufacturers Rarely Sued for Patent Infringement

The FTC asked Wireless Respondents to identify all litigation involving infringement of Wireless Patents that they or their Affiliates brought during the study period in U.S. district court or the ITC.²⁷⁶ Twenty-three Wireless Respondents—four Wireless Manufacturers, five NPEs, three Portfolio PAEs, and 11 Litigation PAEs—reported relevant information. Four Wireless Manufacturers did not sue for infringement of any wireless patent during the study period.

²⁷⁵ The FTC categorized all cases in the study as either pending or terminated. A case terminates when a plaintiff dismisses the case, the court dismisses the case, the parties reach a settlement, or the court renders a final verdict.

²⁷⁶ Appendix C: PAE Special Order, Specification H.2; Appendix D: Wireless Case Study Special Order, Specification E.2.

Figure 4.3: Relative Proportion of Wireless Patent Cases

Note: Wireless Manufacturers account for 2% of cases. ITC investigations are excluded from Figure 4.3. Figure depicts 684 cases.

Wireless Respondents filed 684 infringement cases in district court during the study period.²⁷⁷ As seen in Figure 4.3, the volume of district court cases in the study varied by Wireless Respondent type. Litigation PAEs initiated nearly two and a half times as many district court cases as all other Wireless Respondents combined. Illustrating a stark contrast in business models, Litigation PAEs initiated significantly more cases than Wireless Manufacturers, which accounted for approximately 90% of

²⁷⁷ For the litigation analysis, the unit of observation is a matter between a particular plaintiff and a particular defendant involving a particular set of asserted patents. The FTC calls this unit of observation a “case.” See Appendix B: Methodology (describing the methodology used to transform reported litigations into cases).

worldwide wireless chipset sales during the study period.²⁷⁸ Wireless Respondents initiated 28 investigations before the ITC.²⁷⁹ NPEs initiated ITC investigations nearly as often as all other Wireless Respondents combined, accounting for 13 ITC proceedings. Wireless Manufacturers initiated eight ITC investigations, while Study PAEs initiated seven ITC investigations, of which six were initiated by Litigation PAEs.

Litigation Outcomes

This section compares case outcomes across Wireless Respondent types. To compare the percentage of cases that resulted in a license by Wireless Respondent type and to calculate the average duration of those cases, the analysis excludes all cases that were still pending at the end of the study period.²⁸⁰ The FTC categorized terminated cases as settled or as terminated for some other reason.²⁸¹ Eighty percent of terminated cases settled.

There was remarkable variation in case outcomes among different Wireless Respondent types. Chapter 3 reported that Litigation PAE cases were less likely to terminate in settlements than were Portfolio PAE cases. In particular, all Portfolio PAE cases (including those not related to the infringement of wireless patents) that terminated during the study period settled while only 76% of all Litigation PAE terminated cases (including those not related to the infringement of wireless patents) settled. A similar pattern holds in how the wireless patent cases were resolved.

All wireless patent cases involving Wireless Manufacturers and Portfolio PAEs that terminated during the study period settled. By contrast, 76% of Litigation PAE cases related to wireless patents that terminated during the study period settled, the same percentage as that for Litigation PAE cases

²⁷⁸ See *supra* note 267.

²⁷⁹ Procedurally, the ITC's Office of Unfair Import Investigations initiates investigations based on a complaint from a patent holder. Reported ITC investigations typically had parallel district court cases, although three of the ITC investigations involving wireless patents in the study sample did not.

²⁸⁰ The FTC categorized all cases as either pending or terminated. Among cases involving wireless patents, 28%, 39%, and 50%, respectively, of Study PAE-, NPE-, and Wireless Manufacturer-initiated cases were pending at the end of the study period. The FTC also excluded the ITC investigations because all but three of them had a companion case in district court.

²⁸¹ For purposes of the FTC's analysis, a case terminates when a plaintiff dismisses the case, the court dismisses a case, the parties reach a settlement, or a court renders a final verdict. The FTC also treated all settled cases as settling with a license.

involving patents across all technology sectors.²⁸² NPE settlement rates following litigation varied considerably. Although 89% of NPE terminated cases settled, some NPEs reported that nearly all of their terminated cases settled while others reported that less than two-thirds settled. In sum, Wireless Manufacturers, Portfolio PAEs, and some NPEs were much more likely to reach a settlement, and consequently a licensing agreement, with an alleged infringer than were Litigation PAEs after asserting wireless patents in district court.

Of the reported Study PAE and NPE cases, none resulted in decisions involving court-awarded damages because they all either terminated before final judgment or were still pending at the end of the study period. Among Wireless Manufacturer cases terminating during the study period, five cases resulted in decisions involving court-awarded damages. No Wireless Respondent reported the issuance of sanctions pursuant to Federal Rule of Civil Procedure 11, or the award of attorneys' fees against them pursuant to 35 U.S.C. § 285.

Table 4.1: Distribution of the Duration of Wireless Respondent Cases

	Percentage of Cases that Settle			
	Within 6 Months	Within 12 Months	Within 18 Months	Within 24 Months
Portfolio PAEs	4%	9%	17%	30%
NPEs	35%	55%	67%	84%
Manufacturers	13%	13%	63%	75%
Litigation PAEs	42%	75%	91%	94%

Note: Table describes, by construction, the duration to settlement of settled cases only. Table includes 23 Portfolio PAE cases, 51 NPE cases, 8 Manufacturer cases, and 204 Litigation PAE cases.

As reported in Chapter 3, Litigation PAEs resolved their cases much more quickly than Portfolio PAEs did. Table 4.1 shows that there also were striking differences in the duration of settled cases involving Wireless Respondents.²⁸³ Litigation PAEs settled most quickly relative to other Wireless Respondents,

²⁸² When cases terminated without a settlement, termination was generally due to the grant of a dispositive motion in favor of the defendant or a voluntary withdrawal by the plaintiff.

²⁸³ The FTC compared the duration of settled cases. This analysis did not include cases that terminated without a settlement or remained pending at the end of the study period. The FTC also excluded the duration of ITC proceedings because they have different procedural deadlines. These restrictions resulted in a sample consisting of just over half of the total wireless patent cases initiated in district court: 52%, 56%, 54%, and 50% of Portfolio PAE, Litigation PAE, NPE, and Wireless Manufacturer cases, respectively.

with 75% of their settlements occurring within a year of filing the complaint.²⁸⁴ Most Wireless Manufacturer and NPE cases also settled relatively quickly. Around two-thirds of the Wireless Manufacturer and NPE settled cases settled within 18 months, and at least three-quarters settled within two years. Nearly 70% of Portfolio PAE-settled cases took more than two years to resolve. In other words, although Portfolio PAEs did not sue as frequently as NPEs and Litigation PAEs, when they did file cases, their cases took longer to resolve than those of the other Wireless Respondents.

Wireless Respondents differed in their use of contingency fee counsel. Wireless Manufacturers did not report using contingency fee counsel, and Portfolio PAEs typically paid their lawyers on a fee-for-service basis. Consistent with the observations in Chapter 3, all Litigation PAEs reported using contingency fee arrangements.²⁸⁵ Four of the five NPEs also reported using contingency fee arrangements.

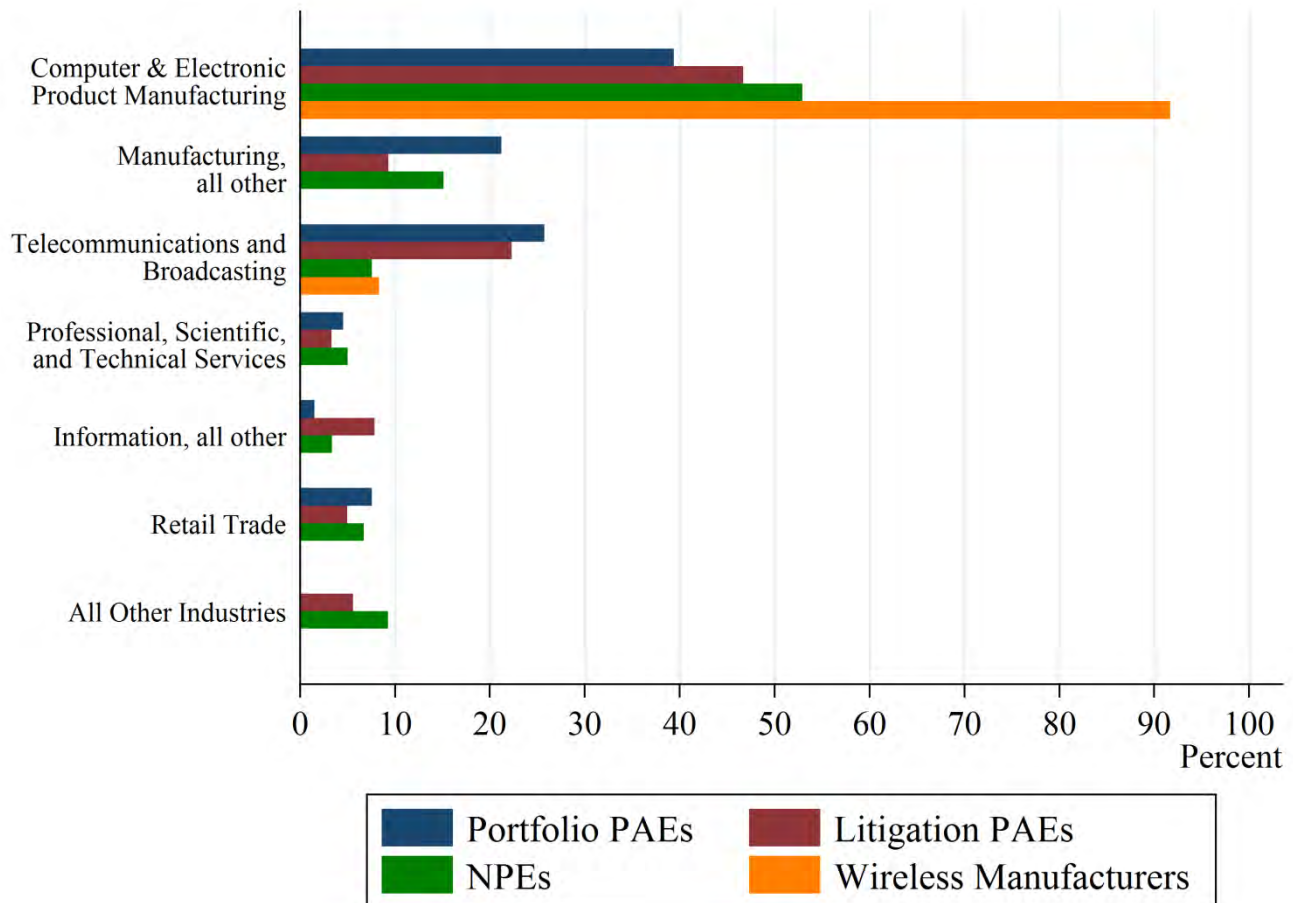
Most Wireless Defendants Operated in the “Computer & Electronic Product Manufacturing” Industry

As reported in Chapter 3, a large share of Study PAE defendants operated outside of manufacturing industries, but more Litigation PAE defendants than Portfolio PAE defendants appeared to be non-manufacturers. Figure 4.4, shows, by Wireless Respondent type, the industries in which defendants in the wireless patent cases operated.²⁸⁶ Like recipients of wireless patent demands, wireless patent defendants most commonly operated in the “Computer & Electronic Product Manufacturing” industry, accounting for 46% of all defendants.

²⁸⁴ See Appendix B: Methodology (discussing the methodology used to calculate case duration).

²⁸⁵ This excludes one Litigation PAE, which gave an incomplete answer to the FTC’s question about the use of contingency fee arrangements, citing attorney-client privilege.

²⁸⁶ See Appendix B: Methodology (describing the methodology used to assign defendants to industries).

Figure 4.4: Industries of Wireless Patent Case Defendants

Note: See Appendix B for a description of how firms are assigned to industries. The “Information, all other” industry includes, but is not limited to, firms operating as Software Publishers, Motion Picture and Sound Recording firms, and Internet Publishing and Broadcasting and Web Search Portals firms. Figure depicts 66 Portfolio PAE cases, 484 Litigation PAE cases, 119 NPE cases, and 12 Wireless Manufacturer cases.

That percentage still left a substantial share of defendants in other industries, and the breakdown of industries varied considerably by Wireless Respondent type. For example, about 40% of Portfolio PAE wireless patent defendants did not operate in either the “Computer & Electronic Product Manufacturing” industry or the “Manufacturing, all other” industry. Instead, about a quarter of all Portfolio PAE wireless patent defendants operated in the “Telecommunications and Broadcasting” industry and 8% operated in the “Retail Trade” industry. NPE defendants also operated in a wide range of industries. Ninety-two percent of Wireless Manufacturer defendants operated in the “Computer & Electronic Product Manufacturing” industry. So while Wireless Manufacturers rarely sued to enforce wireless patents during the study period, when they litigated, they typically sued other manufacturers.

Wireless Respondents' Licensing Activity

This section compares the licensing behavior of Wireless Respondents, focusing on four primary comparisons. First, it describes the overall licensing activity and examines the characteristics of licenses that included wireless patents. Second, it assesses the relative importance of using litigation to generate licenses. Next, it describes the relative magnitude of license revenue. Finally, it identifies the industries in which the licensees operated by Wireless Respondent type.

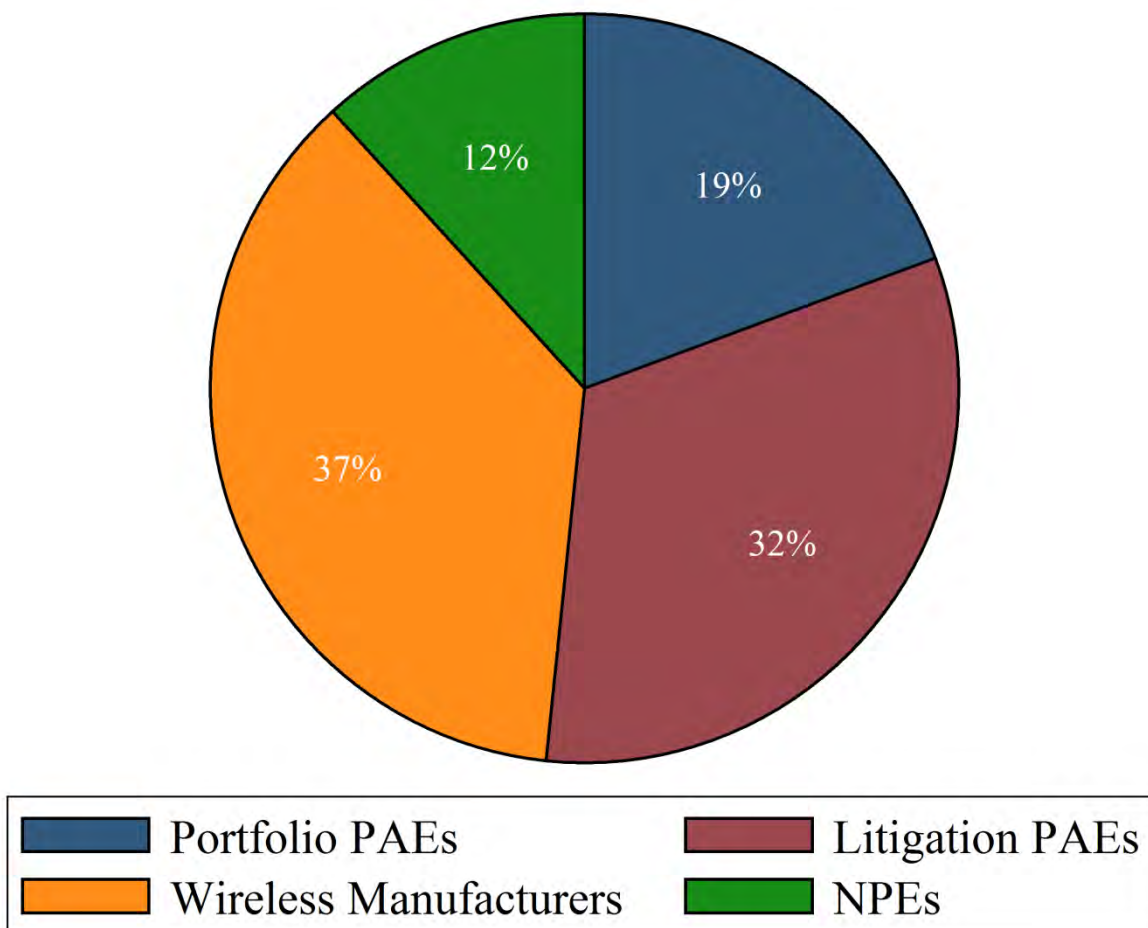
Because the Study PAE licenses in this chapter are a subset of all Study PAE licenses, the Litigation PAE and Portfolio PAE activity reported here reflects the behavior reported in Chapter 3. Wireless Manufacturer behavior, however, was very different from Litigation PAE behavior for each metric studied. Wireless Manufacturers in the study frequently negotiated ongoing royalty payments in their licenses, while Litigation PAEs relied on lump-sum payments. Wireless Manufacturers also used more complicated licensing terms, such as field-of-use restrictions and cross-licenses, which almost never appeared in Litigation PAE licenses. These different licensing practices are consistent with Wireless Manufacturers and Litigation PAEs having very different business models. Interestingly, NPE licensing behavior appeared to be split between NPEs that licensed more like Wireless Manufacturers, and NPEs that licensed more like Litigation PAEs.

Licensing Activity and License Characteristics

The FTC asked Wireless Respondents to identify licenses related to wireless patents,²⁸⁷ and to produce certain licensing data. The group of Wireless Respondents that held such licenses consisted of five Wireless Manufacturers, five NPEs, three Portfolio PAEs, and ten Litigation PAEs.²⁸⁸ In total, Wireless Respondents submitted 1,003 license agreements covering wireless patents. Wireless Manufacturers and Litigation PAEs, which executed 37% and 32% of the licenses in the study, respectively, executed many more licenses than did NPEs and Portfolio PAEs. Figure 4.5 breaks down the share of licenses by Wireless Respondent type.

²⁸⁷ Appendix C: PAE Special Order, Specification H.3; Appendix D: Wireless Case Study Special Order, Specification E.3.

²⁸⁸ All Wireless Respondents that were engaged in wireless patent litigation during the study period also entered into wireless patent licenses during the study period with the exception of one Litigation PAE.

Figure 4.5: Relative Proportion of Wireless Patent Licenses

Note: Figure depicts 1,003 licenses relating to wireless patents.

In general, patent licenses are contracts that allow a third party to use a patent holder's patents under certain conditions, often in exchange for payment. As noted in Chapter 3, Litigation PAE licenses tended to use relatively simple license terms. For example, the typical Litigation PAE license did not include any geographic or field-of-use restrictions and called for only a lump-sum royalty payment. Table 4.2 compares some characteristics of licenses related to wireless patents by Wireless Respondent type. The first three columns of Table 4.2 show the percentage of licenses by Wireless Respondent type that contained a given license term, and the final three columns summarize payment terms.

Table 4.2: Percentage of Wireless Patent License Agreements with Given Characteristics

	Contract Terms			Payment Terms		
	Cross License	Field of Use Restriction	Geographic Restriction	Lump Sum Only	Running Royalty Only	Both Lump Sum and Running Royalty Components
Manufacturers	82.8%	99.5%	0.8%	52.7%	14.6%	32.7%
NPEs	10.8%	47.5%	5.9%	59.6%	23.9%	16.5%
Portfolio PAEs	2.1%	69.6%	5.2%	86.0%	12.2%	1.7%
Litigation PAEs	0.3%	1.5%	10.8%	100.0%	0.0%	0.0%

Note: Payment terms were calculated using only data for those licenses reporting positive revenues. Raw numbers differ between contract terms sub-table and payment terms sub-table due to non-reporting by Responding PAEs. Total Manufacturers licenses reflected in the table is 367 for contract terms and 281 for payment terms. Total NPE licenses reflected in the table is 118 for contract terms and 109 for payment terms. Total Portfolio PAE licenses reflected in the table is 194 for contract terms and 172 for payment terms. Total Litigation PAE licenses reflected in the table is 324 for contract terms and 251 for payment terms.

Very few Study PAE licenses included cross-licenses, which is not surprising because PAEs do not develop or produce technology, and therefore do not need licenses to others' patents. Consistent with the observations in Chapter 3, Litigation PAEs very rarely included field-of-use restrictions in their wireless patent licenses, whereas Portfolio PAEs included field-of-use restrictions in the majority (69.6%) of their wireless patent licenses. Wireless Manufacturer licenses rarely included geographic restrictions, but they almost always included cross-licenses and field-of-use restrictions.

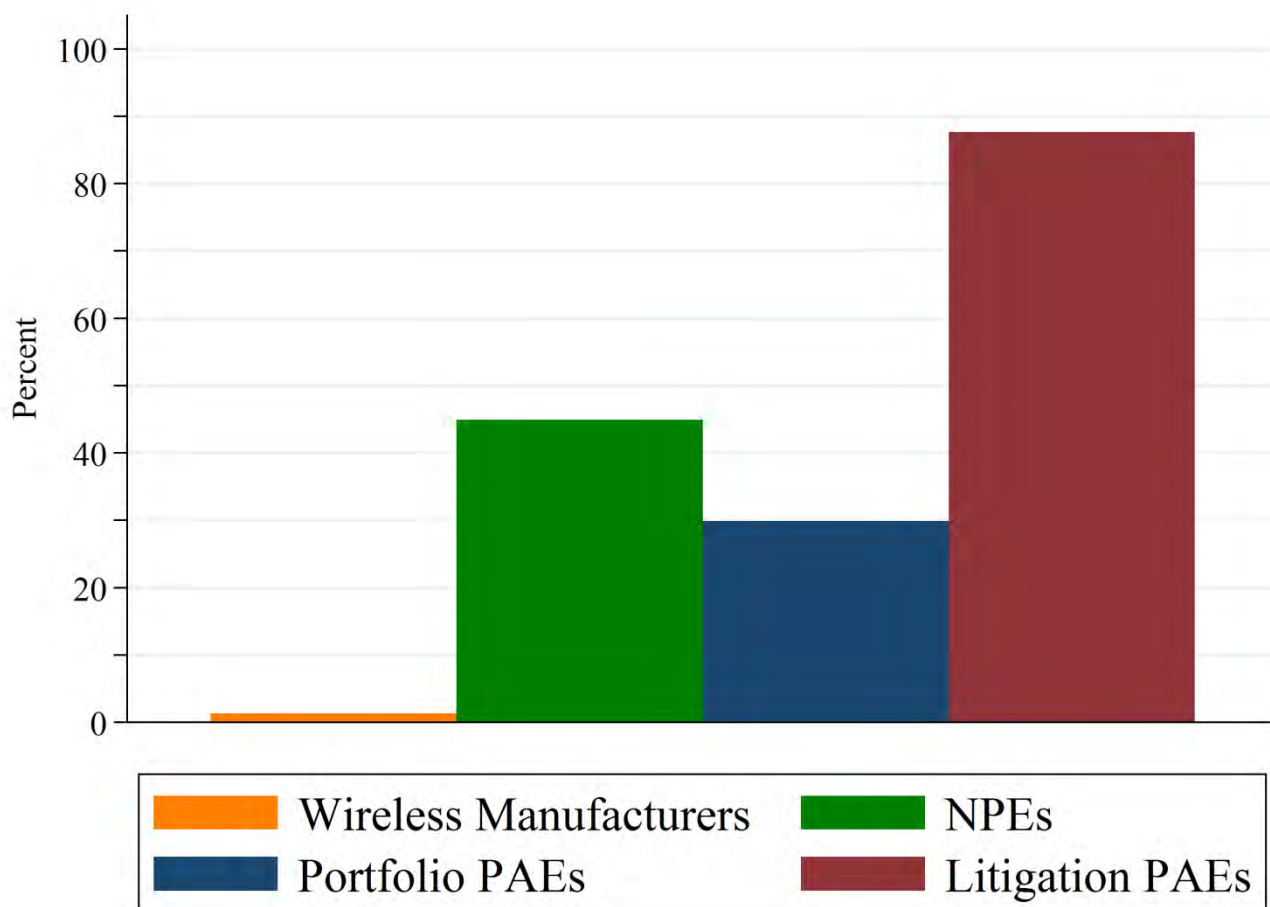
Table 4.2, however, obscures the variability in license terms across NPEs. Some NPEs, like Wireless Manufacturers and Portfolio PAEs, negotiated more complicated license terms. Other NPEs, however, executed simpler licenses, much like Litigation PAEs. One NPE frequently included cross-licenses, while the remaining four NPEs generally did not do so.²⁸⁹ Two NPEs included a field-of-use restriction in all of their licenses, while the three remaining NPEs rarely included such restrictions.

Wireless Manufacturer licenses frequently contained more complicated payment terms than Study PAE licenses involving wireless patents. As expected from the discussion in Chapter 3, Study PAE licenses almost always contained lump-sum royalty payments and infrequently included running-royalty

²⁸⁹ One other NPE occasionally included a cross-license in its agreements. Less than 3% of this NPE's agreements included a cross-license.

payments.²⁹⁰ By contrast, nearly half of the Wireless Manufacturer licenses included a running-royalty, and nearly a third included running-royalty and lump-sum payments. NPEs split between the Wireless Manufacturer model and the Study PAE model: some NPEs executed licenses with lump-sum payments only, while others reported licenses with running-royalty payments.

Figure 4.6: Fraction of Wireless Patent Licenses that Followed Litigation



Note: Figure depicts 1,003 licenses relating to wireless patents.

Wireless Manufacturers almost always managed to license their patents without resorting to litigation, while Litigation PAEs almost always sued before licensing wireless patents. One of the major findings reported in Chapter 3 was that Litigation PAEs almost always sued a firm before executing a

²⁹⁰ A running-royalty involves payments based on the number of units sold or produced.

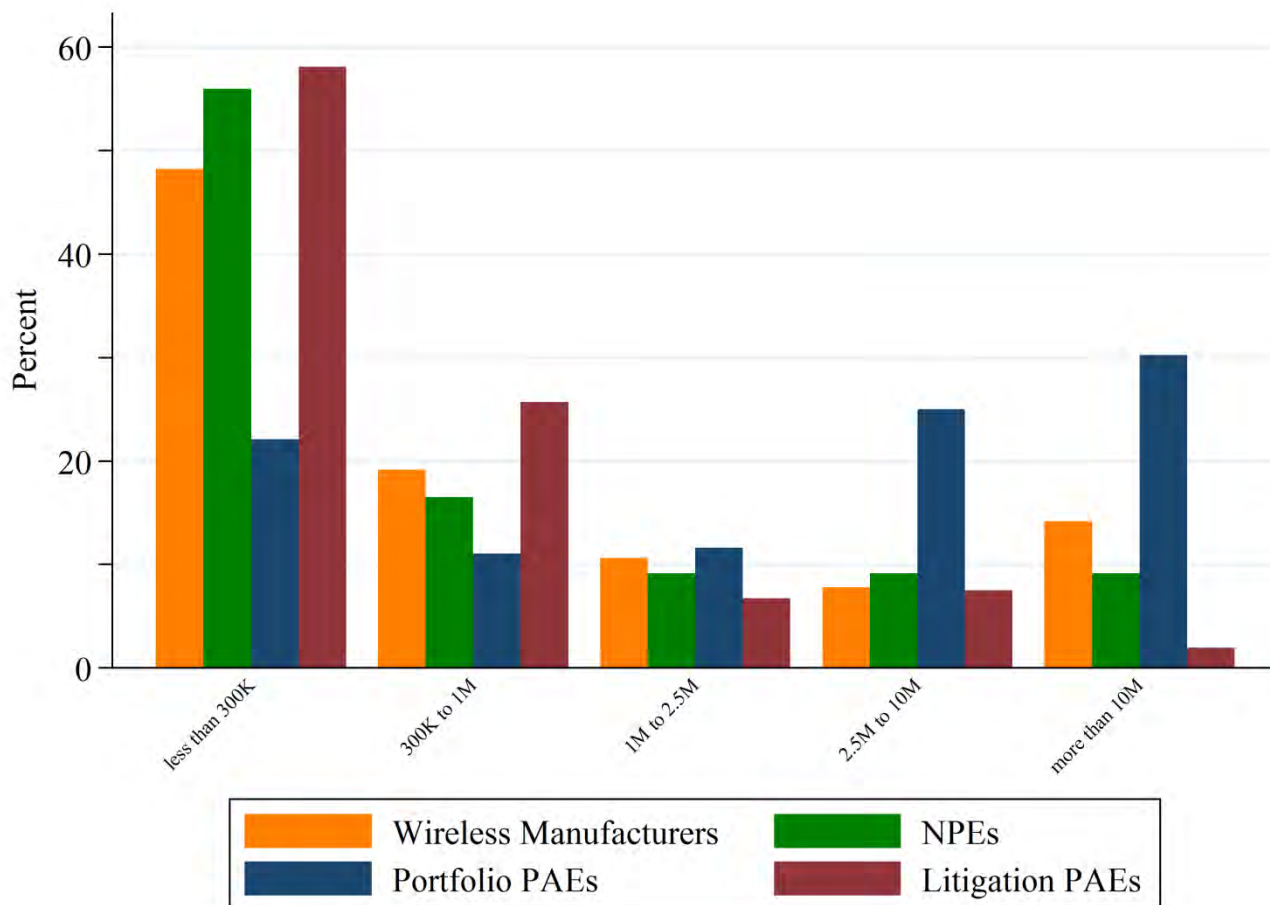
license with that entity, whereas Portfolio PAEs generally executed licenses without filing suit. Litigation PAE and Portfolio PAE behavior for the wireless patents examined here is generally consistent with the behavior reported in Chapter 3 across all patent categories. Figure 4.6 presents the percentage, by Wireless Respondent type, of all Wireless Respondent licenses in the study that followed litigation with the licensee. Nearly 90% of Litigation PAE licenses involving wireless patents followed litigation, while only 30% of Portfolio PAE licenses involving wireless patents followed litigation. In stark contrast, only 1% of Wireless Manufacturer licenses followed litigation. Once again, there was significant variation among NPEs. Although 45% of NPE patent licenses followed litigation, some NPEs primarily executed licenses following litigation, while other NPEs behaved more similarly to Portfolio PAEs.

Magnitude of License Fees for Wireless Patents

Wireless Respondents reported \$21 billion in total revenue from relevant licenses during the study period with over 80% of this license revenue attributable to Wireless Manufacturer licenses. Figure 4.7 presents the distribution of the patent license royalty payments by Wireless Respondent type.²⁹¹ Figure 4.7 shows that Litigation PAEs earned much lower revenue from licenses involving wireless patents than did Portfolio PAEs. Wireless Manufacturers entered into a large number of high-revenue licenses, as well as a large number of low-revenue (often zero-revenue) cross-licenses.²⁹² Thirty-three percent of the Wireless Manufacturers' non-zero royalty licenses generated more, often much more, than \$1 million in revenue, while 48% of their licenses generated less than \$300,000 in revenue.

²⁹¹ To maintain data confidentiality, the FTC aggregated licensing revenue into five revenue categories, ranging from "less than \$300,000" to "over \$10 million." See Figure 3.9 for the related frequency distribution in Chapter 3.

²⁹² Of the Wireless Manufacturer licenses, 14% generated revenues of more than \$10 million. In addition, 23% of licenses did not require a royalty payment, and 80% of these zero-royalty licenses included a cross-license.

Figure 4.7: Distribution of Wireless Patent Licensing Royalties

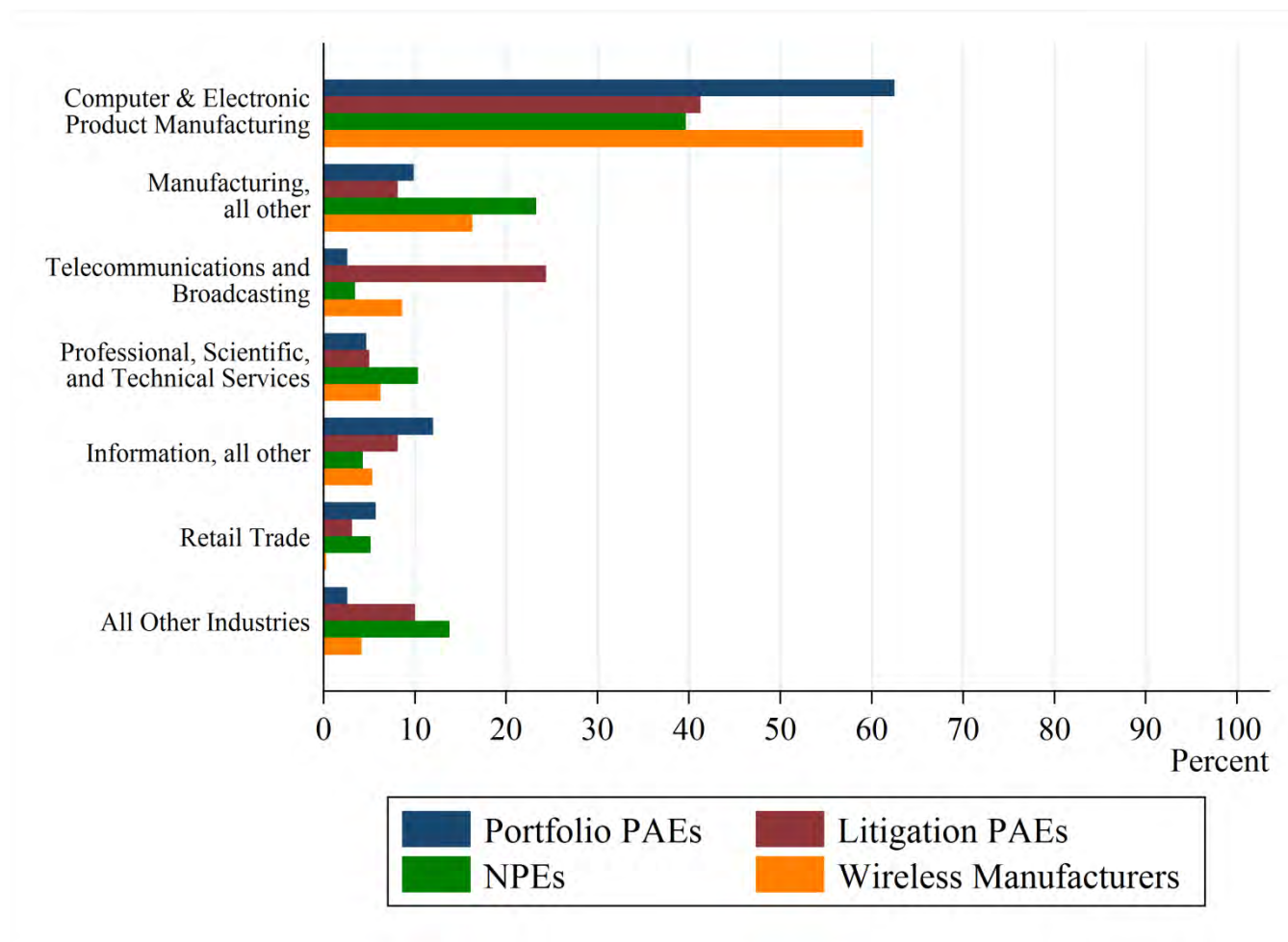
Note: Sample restricted to 816 licenses reporting positive royalty payments: 253 Litigation PAE licenses, 172 Portfolio PAE licenses, 282 Wireless Manufacturer licenses, and 109 NPE licenses.

As observed with other aspects of NPE licenses, there was considerable variation in revenue distribution across NPEs. The revenue distribution of some NPEs was similar to Litigation PAE distribution, with the majority of licenses valued at less than \$300,000. More than 93% of the licenses for these NPEs included a royalty payment. Other NPEs had a revenue distribution similar to those of Portfolio PAEs and Wireless Manufacturers, in which most licenses generated royalties greater than \$1 million and many generated revenues greater than \$10 million.

Most Wireless Licensees Operated in the “Computer & Electronic Product Manufacturing” Industry

Consistent with our observations of wireless patent demand recipients and wireless patent litigation defendants, most wireless patent licensees operated in the “Computer & Electronic Product Manufacturing” industry. As seen in Figure 4.8, which shows licensee industries by Wireless Respondent type, nearly 50% of Wireless Respondent licensees operated in the “Computer & Electronic Product Manufacturing” industry.²⁹³ Because the analysis focused on the wireless chipset sector, this finding was not surprising. However, Wireless Manufacturers and Portfolio PAEs licensed wireless patents more consistently to firms in this industry. Approximately 75% of Wireless Manufacturer and Portfolio PAE licenses involved licensees in either the “Computer & Electronic Product Manufacturing” industry or the “Manufacturing, all other” industry. There was, however, considerable variation in the industries in which the remaining licensees operated.

²⁹³ See Appendix B: Methodology (describing the methodology used to assign licensees to industries).

Figure 4.8: Industries Subject to Wireless Patent Licensing

Note: See Appendix B for a description of how firms are assigned to industries. The “Information, all other” industry includes, but is not limited to, firms operating as Software Publishers, Motion Picture and Sound Recording firms, and Internet Publishing and Broadcasting and Web Search Portals firms. Figure depicts 192 Portfolio PAE licenses, 320 Litigation PAE licenses 116 NPE licenses, and 337 Wireless Manufacturer licenses.

Litigation PAEs and NPEs licensed their wireless patents to licensees across a wider range of industries than did Wireless Manufacturers and Portfolio PAEs. For example, 51% of Litigation PAE licensees did not operate in either the “Computer & Electronic Product Manufacturing” industry or in the “Manufacturing, all other” industry. Figure 4.8 thus suggests that Litigation PAEs frequently enter into licenses with entities that may be end-users of wireless chipset technology.

Conclusion

The FTC's goal in studying patent assertion activity in the wireless chipset sector was to understand whether PAE assertion behavior differed from that of other firms that also license patents. We found that in some ways Study PAE assertion behavior was similar to the assertion behavior of Wireless Manufacturers and NPEs, but in other ways it was different. These similarities and differences, however, depended on the type of PAE. Portfolio PAE assertion behavior most resembled Wireless Manufacturer behavior. Wireless Manufacturers and Portfolio PAEs both tended not to assert their wireless patents against firms that were likely to be end-users of technology, brought relatively few patent infringement cases, and settled all of their cases.²⁹⁴ Portfolio PAEs, like Wireless Manufacturers, mostly paid litigation counsel on a fee-for-service basis.

Litigation PAE behavior, however, differed significantly from Wireless Manufacturer behavior. Litigation PAEs initiated far more wireless patent cases and were more likely to sue firms that may be end-users of technology. Litigation PAEs granted more of their licenses following litigation than Wireless Manufacturers, but less of their cases ended in settlement than did Wireless Manufacturers' cases. Cases brought by Litigation PAEs also tended to settle far more quickly than did cases brought by Wireless Manufacturers.

NPE behavior was more heterogeneous. Some NPEs behaved similarly to Portfolio PAEs, while other NPEs behaved like Litigation PAEs. The NPEs that were similar to Portfolio PAEs were less likely to use litigation to generate licenses, and the cases they did bring proceeded for a relatively long time prior to settlement. These NPEs also had many high-royalty licenses, like Portfolio PAEs. The NPEs that resembled Litigation PAEs almost always used contingency fee arrangements to compensate litigation counsel, were more likely to sue firms that may be end-users of technology, and granted most of their licenses following litigation.

²⁹⁴ Portfolio PAEs, however, took longer to settle their cases than did Wireless Manufacturers.

Chapter 5: Patent Characteristics

Introduction

This chapter describes the patents and patent applications held by Study PAEs and Holding Entities.²⁹⁵ It combines publicly available information describing granted patents with confidential information reported by Responding PAEs about the patents that they owned and asserted. Portfolio PAEs held significantly more patents than Litigation PAEs. However, the FTC did not find dramatic differences in the compositions of Portfolio PAE and Litigation PAE patent holdings. Study PAEs focused on acquiring and asserting patents related to Information and Communication Technologies (ICT). For all patents reported in the FTC’s study:

- Eighty-eight percent related to the Computers & Communications or Other Electrical & Electronic patent technology categories;
- More than 75% were software-related patents.²⁹⁶

These figures are consistent with anecdotal reports and the generally held view that PAEs disproportionately acquire and assert ICT and software patents.²⁹⁷ Furthermore, among the patents in the FTC’s sample:

- Fewer than 1% were identified as encumbered by a commitment to a Standard Setting Organization;

²⁹⁵ See Appendix A: Glossary of Frequently Used Terms. “Holding Entity” means a firm identified by a Responding Firm in response to Specification B.2 that *held but did not assert* patents during the study period. (Firms identified in response to Specification B.2 that *held and asserted* patents are called “Affiliates.”) *Id.* Figure 1.1 represents the Holding Entities as the 2,189 firms that are on the side of the figure that “did not Assert IP.” Study PAEs include all Responding PAEs and their Affiliates, which engaged in assertion activity. This chapter refers to the combined holdings of the Study PAEs and Holding Entities as the “study sample of patents.” *Id.*

²⁹⁶ The FTC used the methodology developed by Graham and Vishnubhakat for identifying software-related patents and the patent technology categories developed by Hall et al. to classify patents into broad technology categories. See Graham & Vishnubhakat, *supra* note 9; Hall et al., *supra* note 9.

²⁹⁷ See, e.g., Allison et al., *supra* note 46, at 18 (software patents); COMINO & MANENTI, *supra* note 2 at 3 (ICT patents); Christian Helmers, Brian Love & Luke McDonagh, *Is There a Patent Troll Problem in the U.K.?*, 24 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 509, 516 (2014) (ICT patents); Shrestha, *supra* note 96, at 145 (ICT patents); YEH, *supra* note 120, at 9 (software and ICT patents, citing articles by scholars).

- Patent assignments were frequently recorded with the USPTO;
- On average, Study PAEs tended to acquire patents several years before their expiration date;
- Patents asserted in litigation generally were cited more frequently in other patents and patent applications than either the population of patents overall, or the full study sample of patent holdings that were not asserted in litigation;²⁹⁸
- Portfolio PAEs held more patents overall than Litigation PAEs.

This study does not contain a census of all PAE patents.²⁹⁹ However, the FTC's sample should include a substantial fraction of all patents held by all PAEs during the study period.³⁰⁰ Using Patent Freedom's estimate of individual PAE patent holdings in 2013, the FTC estimates that patents held by PAEs in the FTC's study represent more than 75% of U.S. patents held by all PAEs at the end of 2013.³⁰¹

Methodology

Responding PAEs were required to complete a series of questions concerning each patent held, by themselves or their Affiliates or Holding Entities, at any time between January 1, 2009 and September 15, 2014.³⁰² The FTC asked for information on the priority date and expiration date of each patent, reviews of the patent by the USPTO, legal and economic rights to the patent granted to outsiders,

²⁹⁸ The median litigated patent held by Litigation PAEs had 80% more citations than the average patent, controlling for age and technology category, and the median litigated Portfolio PAE had 30% more citations than the average patent in this control group. The FTC did not observe that Study PAEs used citation data to analyze their patent holdings.

²⁹⁹ To date, no study claims to identify all PAE patents. Due to a lack of information addressing patents held by PAEs in general, previous research has focused on either litigated patents, or the holdings of a single firm. *See, e.g.*, Fischer & Henkel, *supra* note 98; David S. Abrams et al., *Patent Value and Citations: Creative Destruction or Strategic Disruption*, (Nat'l Bureau of Econ. Research, Working Paper No. 19647, 2013), <http://www.nber.org/papers/w19647.pdf>.

³⁰⁰ *See* Appendix B: Methodology (detailing the sampling algorithm used to select study subjects). The algorithm was designed to oversample the largest PAEs, measured by patents held and litigations filed, to capture the most economically significant PAEs. *Id.*

³⁰¹ Patent Freedom provided the FTC with an estimate of the total number of patents held by PAEs. *See supra* note 155 and accompanying text.

³⁰² *See* Appendix A: Glossary of Frequently Used Terms. "Hold" or "Held" means to possess a Legal Right to a Patent, where "Legal Right" means any ownership interest in, an exclusive License to, or other rights adequate to License or enforce, a Patent, and "Patent" means a United States patent or United States patent application as defined by 35 U.S.C. § 101, *et seq.* *Id.*

whether the patent was held under an exclusive license, and assertion activity involving the patent.³⁰³ The FTC supplemented the collected responses with the USPTO bibliographic data on patents granted and the NBER's patent data set.

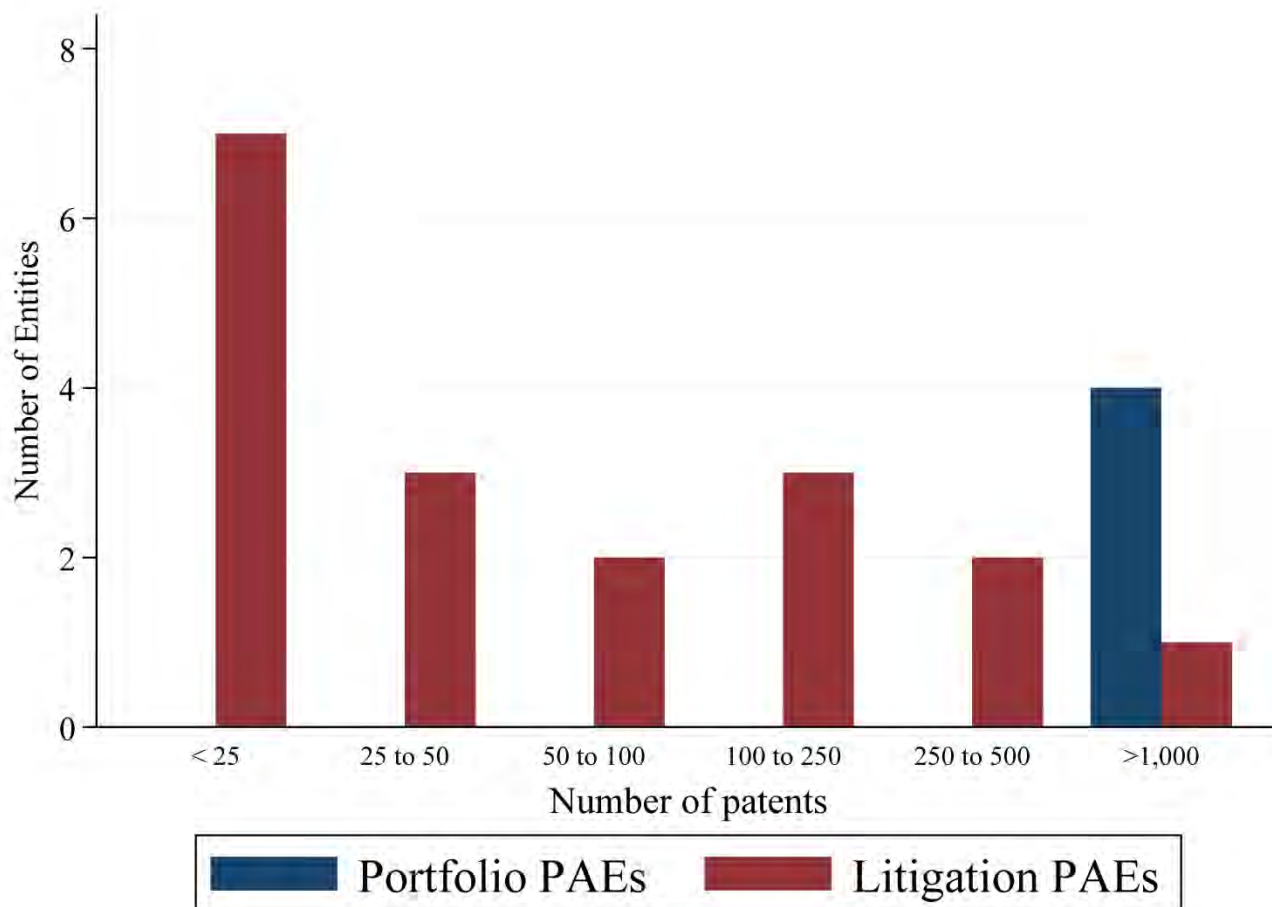
The FTC asked Responding PAEs to report on both issued patents and patent applications that they or their Affiliates and Holding Entities held. Approximately 18% of the holdings reported by Responding PAEs were applications.³⁰⁴ The FTC included applications in the parts of the analysis where they exhibited relevant characteristics similar to those of granted patents, but omitted them from those parts where they did not confer rights or enable uses similar to that of granted patents. For example, although applications can be cited by subsequent patents and applications, issued patents typically receive more citations; therefore, applications were not included in the citations analysis. Similarly, although applications can be licensed, they cannot be asserted in litigation and, consequently, the FTC did not include applications in litigation-related analysis. The report notes when an analysis did not include applications.

Portfolio PAEs Held Many More Patents than Litigation PAEs

Since the Portfolio PAE business model relies on negotiating licenses to large patent portfolios, it was not surprising to find that Portfolio PAEs held significantly more patents than Litigation PAEs. Figure 5.1 shows this patent holding distribution separately for Litigation and Portfolio PAEs. Specifically, it shows that all of the Portfolio PAEs held at least 1,000 patents, and that all but one of the Litigation PAEs held fewer (often much fewer) than 500 patents.

³⁰³ See Appendix C: PAE Special Order, Specification C (identifying the questions related to patent holdings).

³⁰⁴ Utility patents make up the bulk of holdings (approximately 80%) while reissue and design patents were each less than 1.5% of total holdings. Patent applications make up the remaining 18% of the holdings. Due to rounding, these values add up to greater than 100%.

Figure 5.1: Size of Patent Holdings by Responding PAE

Note: Distribution of Size of Responding PAEs' full patent holdings aggregating across all Affiliates and Holding Entities of a Responding PAE (N=22). Patent counts are based on 100% of reported patents and applications.

The five Responding PAEs with the largest patent holdings (all four of the Portfolio PAEs and one Litigation PAE) held more than 90% of all patents in the study. The ten smallest Responding PAEs and their Affiliates and Holding Entities held fewer than 1% of the patent sample.

Litigation PAEs and Portfolio PAEs also differed in the proportion of patent holdings litigated during the study period. Litigation PAEs litigated more than 18% of their holdings, while Portfolio PAEs

asserted fewer than 1% of their holdings in litigation.³⁰⁵ Even though Portfolio PAEs held significantly more patents overall, Litigation PAEs litigated more patents than Portfolio PAEs. There was considerable variation across Litigation PAEs. Three Litigation PAE reported having litigated all of their patents, but most Litigation PAEs litigated fewer than half of their holdings.

The Majority of Study Patents Related to Computers & Communications Technologies

Earlier literature suggested that PAEs focused their efforts on asserting patents related to electronics and software and rarely asserted patents in drug and chemical technologies.³⁰⁶ The GAO, for example, estimated that 84% of patent infringement lawsuits brought by PAEs involved software patents.³⁰⁷ To develop a better understanding of the technologies of patents acquired by PAEs for assertion, the Commission conducted an empirical analysis of the technology categories associated with all patents held by the Study PAEs and Holding Entities. Although there were no dramatic differences in the composition of patents held by Litigation and Portfolio PAEs, to facilitate comparison to results discussed earlier in the report, all findings were reported separately between Litigation PAEs and Portfolio PAEs.

The FTC relied on the USPTO patent classification, supplemented by the NBER patent data set, to describe the general technological subject matter of the patents in the study sample.³⁰⁸ The USPTO assigns every U.S. patent one principal mandatory technology classification, known as its Primary

³⁰⁵ These figures are based upon responses regarding each patent that Holding Entities and Study PAEs held, and may include assertions that commenced outside of the study period. For this reason, the findings in this chapter do not exactly match similar findings described in Chapter 3.

³⁰⁶ See, e.g., Allison et al., *supra* note 46, at 18; Hagiu & Yoffie, *supra* note 96, at 59; Risch, *supra* note 95, at 477; Shrestha, *supra* note 96, at 145.

³⁰⁷ 2013 GAO REPORT, *supra* note 2, at 22 (estimating that “[b]y defendant, software-related patents were used to sue 93 percent of the defendants in PME suits and 46% of the defendants in operating company suits.”). The GAO defined a patent monetization entity (PME) as an entity that “buy[s] patents from others for the purpose of asserting them for profit.” *Id.* at 2. Because this definition is nearly identical to the FTC’s use of PAE, the FTC relied on the GAO’s estimate for PMEs as an estimate for PAEs.

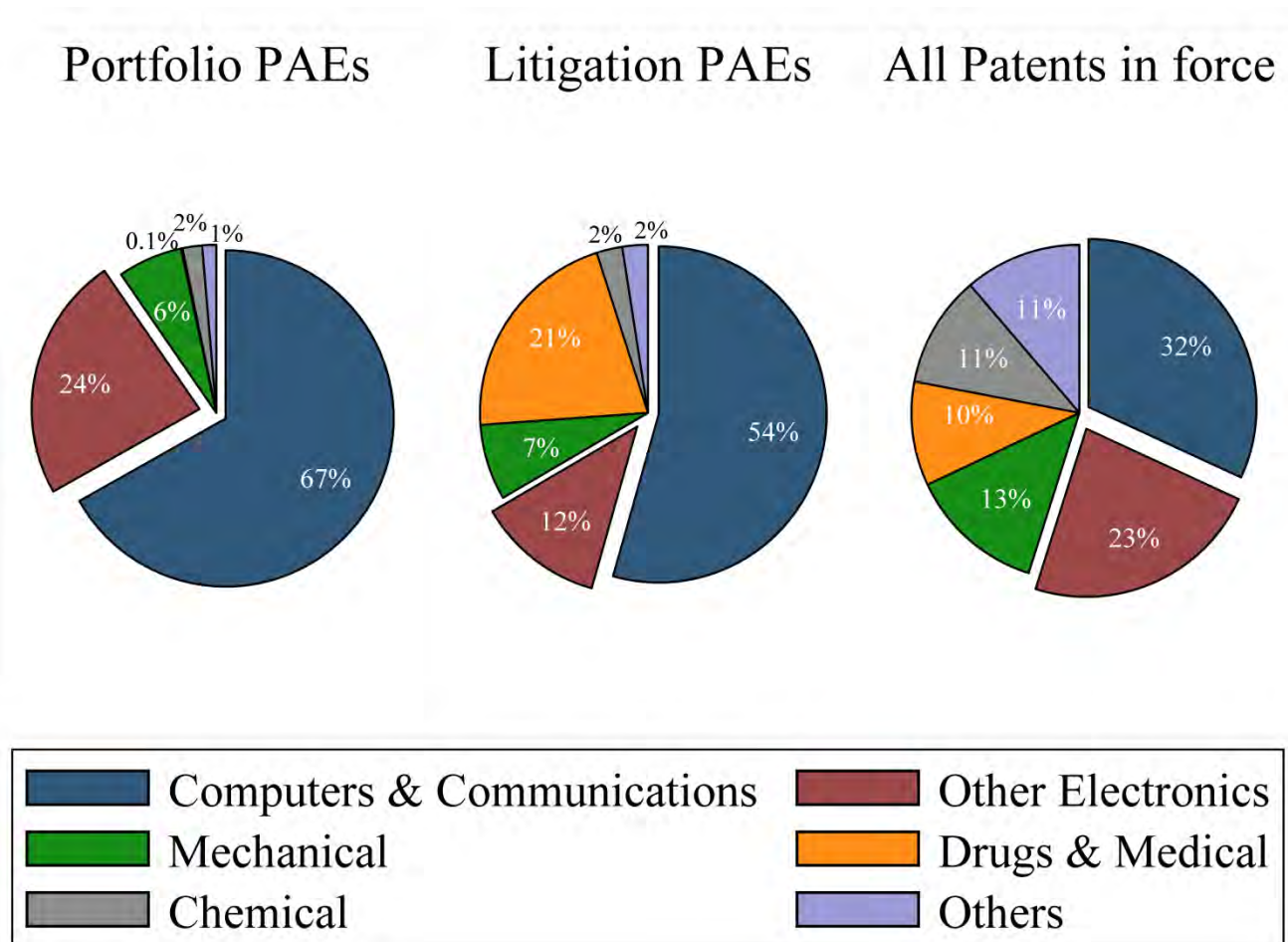
³⁰⁸ The USPTO maintains the U.S. Patent Classification System, which organizes all U.S. patents and many other related documents based on common subject matter. See generally U.S. PAT. & TRADEMARK OFFICE, OVERVIEW OF THE U.S. PATENT CLASSIFICATION SYSTEM (USPC) (2012), <http://www.uspto.gov/sites/default/files/patents/resources/classification/overview.pdf>.

Classification.³⁰⁹ As of the time of report writing, more than 400 three-digit designations were available for use as Primary Classifications.³¹⁰ The NBER patent data set generated by Hall et al. consolidates the USPTO's three-digit designations into six aggregated technology categories: Chemical, Computers & Communications, Drugs & Medical, Semiconductors, Other Electrical & Electronic, Mechanical, and all other technologies.³¹¹ The FTC used these six categories for its analysis because they provide a more tractable classification of patents and have become standard in the literature, which allows for comparisons to previous research.

³⁰⁹ *Id.* at I-5. U.S. patents also may have Secondary Classifications. The FTC limited its analysis to Primary Classifications.

³¹⁰ *Id.* at I-3. *See also U.S. Classes By Number with Title*, U.S. PATENT & TRADEMARK OFFICE, <http://www.uspto.gov/web/patents/classification/selectnumwithtitle.htm>.

³¹¹ Hall et al., *supra* note 9, at 12–13 (stating that the USPTO's approximately 400 main (3-digit) patent classes "are far too many for most applications (such as serving as controls in regressions), and hence we have developed a higher-level classification, by which the 400 classes are aggregated into 36 two-digit technological sub-categories, and these in turn are further aggregated into 6 main categories: Chemical (excluding Drugs); Computers and Communications (C&C); Drugs & Medical (D&M); Electrical and Electronics (E&E); Mechanical; and Others"); *id.* at 13 ("[T]he present classification should be used with great care, and reexamined critically for specific applications."). Since its release, the data set has become the standard for academic patent research, partly for this classification scheme, and has been cited over 2,500 times.

Figure 5.2: Study Sample Patent Technologies

Note: Technology category of all patents held by each type of Responding PAE. "All Patents in force" represents the PTO estimate of the technology category of all valid patents as of December 31, 2013 (Marco et al. 2015). Figures include 99.9% of utility and re-issue patents reported by Study PAEs and Holding Entities, but exclude applications and design patents.

Figure 5.2 presents the distribution of the study sample of utility and reissue patents across the six technology categories, as well as the distribution of all U.S. patents in force as of December 31, 2013.³¹² Study PAEs and Holding Entities held more than 37,000 patents (not including applications),

³¹² Only 75% of applications in the study patent sample were classified in USPTO data, and therefore the FTC did not include applications in this analysis. The inclusion of applications for which class information was available did not qualitatively change the results. For a description of USPTO calculation of patents in force, see Alan C. Marco et al., *The USPTO Historical Patent Data Files: Two Centuries of Invention* 10–12 (U.S. Patent & Trademark Office, Econ. Working Paper No. 2015-1, 2015), http://www.uspto.gov/sites/default/files/documents/USPTO_economic_WP_2015-01_v2.pdf

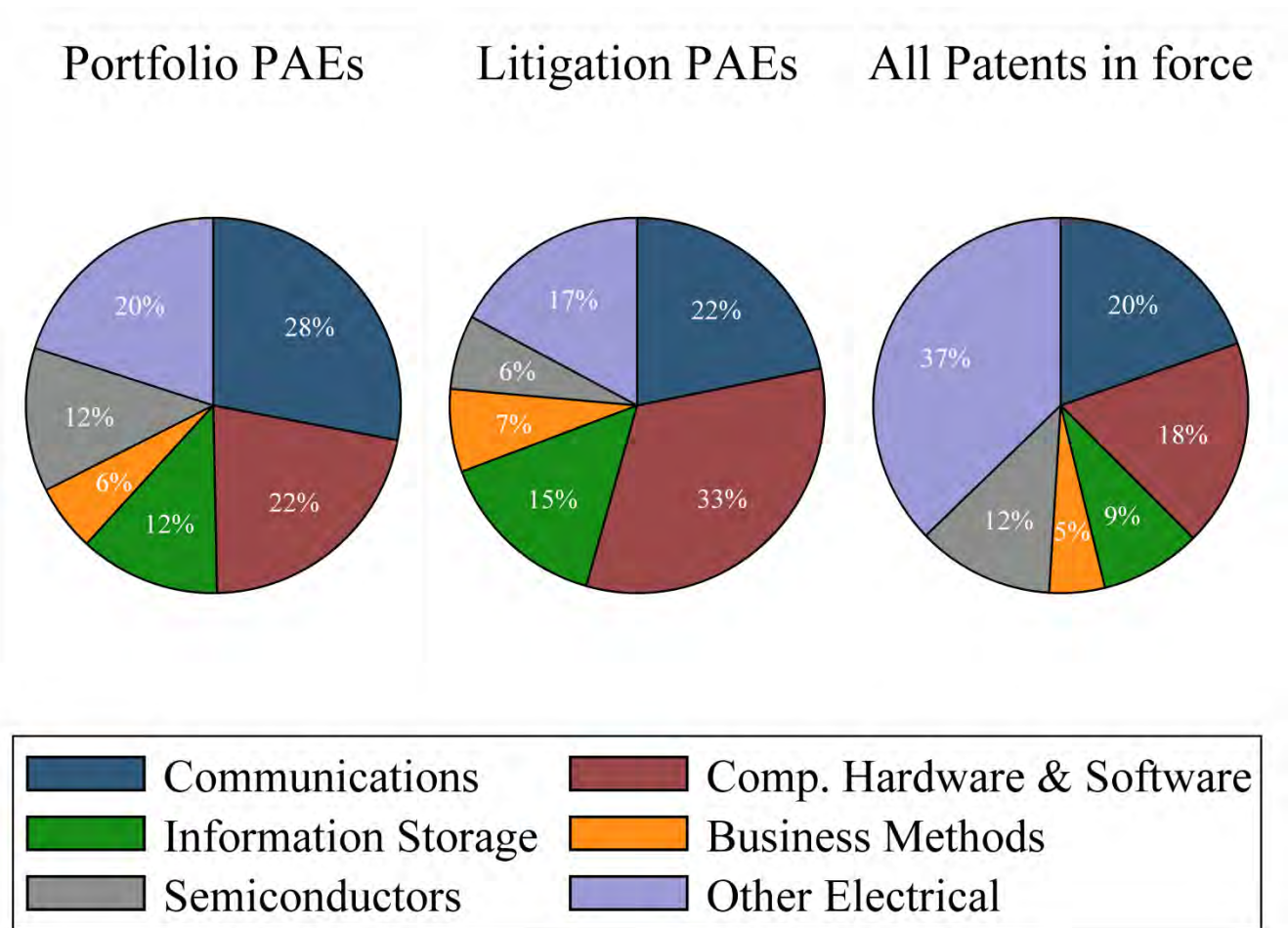
while USPTO economists estimate that approximately 2.41 million patents were in force at the end of 2013.³¹³

Figure 5.2 shows that the majority of study utility and reissue patents were related to Computers & Communications—a considerably larger share than that of all patents in force during the study period. The proportions of patents in the remaining technology categories differed somewhat between Litigation PAEs and Portfolio PAEs. The most striking difference was in Drugs & Medical patents: 21% of the Litigation PAE patents fell into this category while less than 1% of the Portfolio PAE patents did.³¹⁴ By contrast, Portfolio PAEs held many more patents in the Other Electrical & Electronic category (24%) than Litigation PAEs (12%).

³¹³ *Id.*

³¹⁴ The Drugs & Medical patents overwhelmingly consisted of medical device patents. Litigation PAEs did not report holding or asserting drug patents. Of the Drugs & Medical patents litigated by Litigation PAEs, almost all were classified as medical devices rather than patents related to drugs, which is consistent with Study PAEs' overall focus on the ICT sector (because medical devices often incorporate information or communications technologies).

Figure 5.3: Subcategories for Study Sample Patents in Computer & Communications and Other Electrical & Electronic Categories



Note: Technology sub-classification for all "Computer & Communications" and "Other Electrical & Electronics" patents held by each type of Responding PAE. The percentages displayed in the chart are based only on the patents that are in one of these two categories. The sample includes 100% of the study utility and re-issue patents in these categories.

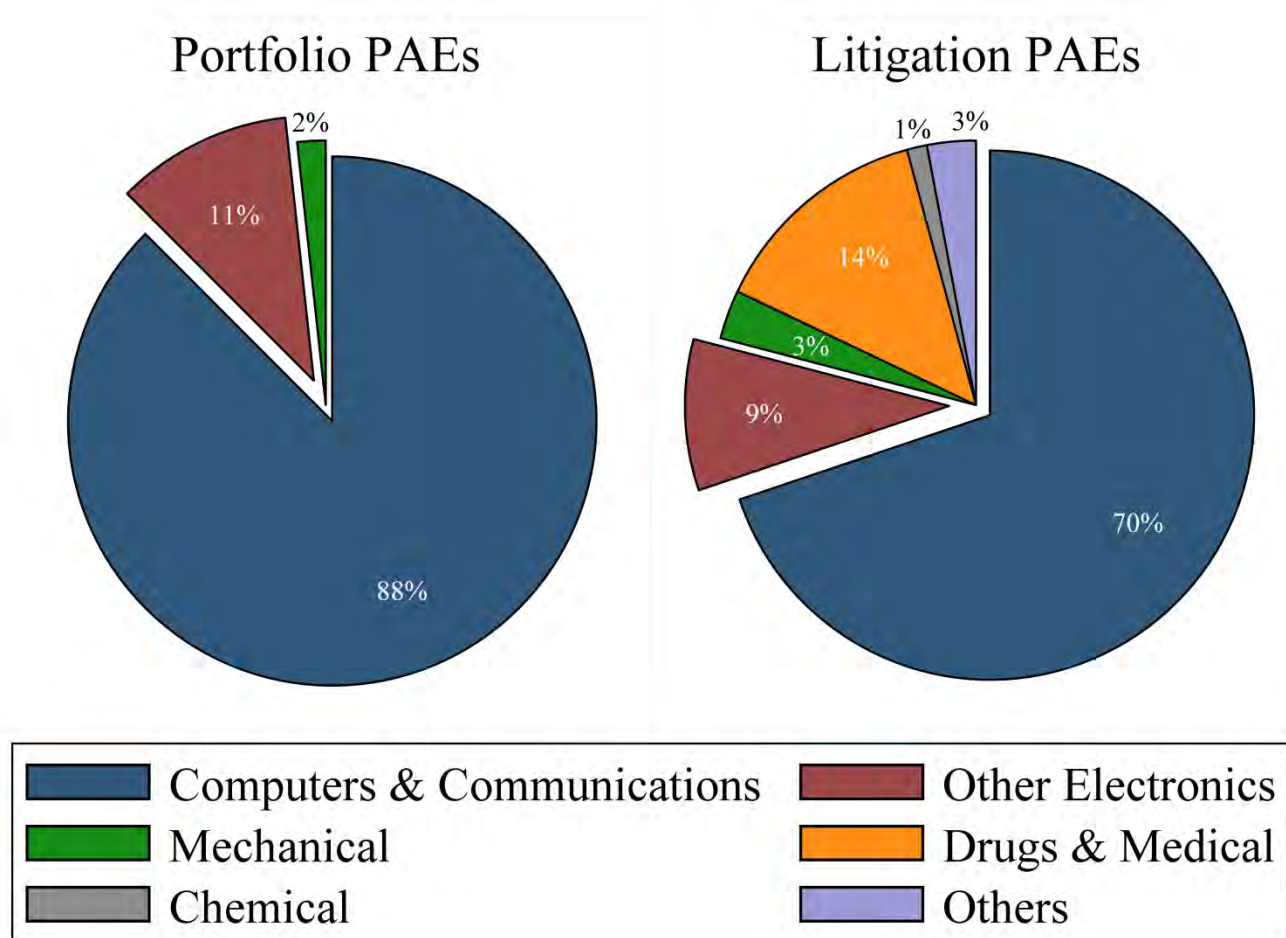
Because such a large share of the study sample of patents were in the Computers & Communications and Other Electrical & Electronic categories, the report provides additional detail on the sub-categories describing the technology types of these patents.³¹⁵ Figure 5.3 shows the relative proportions of patents in the Computers & Communications and Other Electrical & Electronic patent categories. There were no dramatic differences in the composition of the patent holdings of the Litigation and Portfolio PAEs within these sub-categories. For both Litigation and Portfolio PAEs, the largest technology sub-

³¹⁵ Hall et al., *supra* note 9, App'x 1.

categories were Other Electrical & Electronic, Communications, and Computer Hardware and Software. Business method patents, a sub-category of the Computers & Communications category, did not account for a substantial proportion of the study patent sample compared to the general population.

The preceding analysis describes the patents held by Study PAEs and Holding Entities, which consisted of both patents that were identified as forming the basis of a demand or litigation and those that were not. Portfolio PAEs in particular tended to assert via demand or litigation only a relatively small fraction of the patents in their portfolios, while ultimately licensing all of the patents they held. The FTC was interested in learning whether litigated patents came from different technology categories relative to total holdings, in part because litigated patents were an important source of revenue for Study PAEs.³¹⁶ To determine whether this was the case, the FTC evaluated the technology categories corresponding to patents that Study PAEs asserted in litigation.

³¹⁶ The FTC also was interested in whether patents forming the basis of demands were in different technology categories relative to total holdings, but could not conduct this analysis since patents were frequently not specified in the initial demand. Therefore, the patents that were specified in demands likely did not represent an unbiased sample of patent technology categories of all patents asserted through demands.

Figure 5.4: Technology Categories of Litigated Study Sample Patents

Note: Technology category of all patents litigated by each type of Study PAE. Litigated patents represent 2.7% of all reported patents, excluding patent applications. Approximately 0.2% of all study patents held (excluding applications) did not report litigation status.

Figure 5.4 shows the distribution of patent technology categories for litigated patents for Portfolio PAEs and Litigation PAEs. For both Litigation PAEs and Portfolio PAEs, compared to their overall holdings, litigated patents were more likely to be Computers & Communications patents. For example, while 67% of Portfolio PAE holdings were Computers & Communications patents, 88% of their litigated patents were in this category. While Portfolio PAEs held some patents in the Chemical, Drugs & Medical, Mechanical, and Others categories, Figure 5.4 shows that they rarely asserted those patents through litigation. The relative shares of Litigation PAE Chemical, Mechanical, and Drugs & Medical patents that were litigated were also smaller than the Litigation PAE overall holdings in these categories.

More Than 75% of Study Patents Included Software-Related Claims

There has been much public discussion of the frequency with which PAEs assert software-related patents.³¹⁷ Consequently, the FTC took steps to determine the fraction of the study sample of patents most likely to include software-related claims. Although the USPTO does not use a “software” class, in a paper by the former USPTO Chief Economist, USPTO patent examiners identified patent classes that are most likely to include software-related claims.³¹⁸ By comparing the study sample holdings to those USPTO classes, the FTC estimates that approximately 75% of study patents likely include software-related claims (60% of Litigation PAE patents and 80% of Portfolio PAE patents). Patents asserted by Study PAEs in litigation were more likely to include software-related claims than the full set of patents held by either Litigation or Portfolio PAEs. For Litigation PAEs, 73% of litigated patents included software-related claims, and 90% of litigated Portfolio PAE patents included software-related claims, although non-software related claims also may have formed the basis for suit.

The recent U.S. Supreme Court decision in *Alice Corp. v. CLS Bank International* may have significant implications for PAEs holding software patents.³¹⁹ *Alice* considered whether computer-implemented inventions were eligible subject matter for patent protection and held that claims that merely recite “a generic computer” that implements an otherwise-abstract idea do not qualify for patent protection.³²⁰ This holding suggests that many software patents may be invalid for want of subject matter eligibility under the *Alice* analysis. The study did not collect enough information regarding patent assertion after

³¹⁷ See 2013 GAO REPORT, *supra* note 2, at 12 (noting that “[s]oftware-related patents occur in a variety of technologies containing at least some element of software, and covering things like sending messages or conducting business over the Internet (e.g., e-commerce). Patents related to software can, but do not generally, detail computer software programming code in the specification, but often provide a more general description of the invention, which can be programmed in a variety of ways.”).

³¹⁸ Graham & Vishnubhakat, *supra* note 9, at 75 (“Patent Office experts examined all U.S. patent classes and subclasses and determined which were likely to contain patent applications or issued patents containing some element of either general purpose software or software that is specific to some form of hardware. While this definition will certainly be both over-inclusive and under-inclusive, the method is calibrated to help us identify classes in which patents with software claims are most likely to be found.”); see also *id.* at 75 n.7 (listing the identified class-subclass pairs); 2013 GAO REPORT, *supra* note 2 (using the Graham and Vishnubhakat classification to evaluate the number of software-related patents granted per year by USPTO between 1991 to 2011).

³¹⁹ *Alice Corp. v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014).

³²⁰ *Id.* at 2358.

the *Alice* decision to measure directly its impact on PAE activity. Following this decision, however, PAEs may avoid asserting software patents if they expect that: (1) the patents likely would be found invalid under the *Alice* analysis; or that (2) courts may dispose of the case in the early stages of litigation, under the *Alice* analysis. In addition, because more than 75% of the patents in the FTC’s sample likely include software-related claims, and because the FTC estimates that Study PAEs held more than 75% of all U.S. patents held by PAEs at the end of 2013, any change in PAE behavior with respect to software patents that results from *Alice* will likely have a significant impact on both the overall volume of PAE assertion and the types of technologies that PAEs assert.

Fewer Than 1% of Study Patents Were Identified as Encumbered by a FRAND Commitment to a SSO

The FTC’s study examined the extent to which PAEs have acquired patents declared “essential” to practice a technical standard adopted by a standard setting organization (SSO).³²¹ These patents are often referred to as “standard-essential patents” or “SEPs.” Some commentators have suggested that owners of SEPs could attempt to evade FRAND or other commitments, while exploiting the SEPs’ importance to a standard, by transferring encumbered SEPs to a PAE.³²² To measure the extent of this activity in practice, the FTC required Responding PAEs to identify whether any patent it or its Affiliates or Holding Entities held since 2009 had ever been the subject of a licensing commitment made to any SSO.³²³

Responding PAEs did not identify patents encumbered by a licensing commitment to an SSO as a large portion of their patent holdings.³²⁴ Only four of the 22 Responding PAEs identified that they, or their

³²¹ For a summary of five “well-known cases in which PAEs have asserted SEPs,” see Jorge L. Contreras, *Assertion of Standards-Essential Patents by Non-Practicing Entities*, in PATENT ASSERTION ENTITIES AND COMPETITION POLICY (D. Daniel Sokol ed., forthcoming Nov. 2016), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2700117.

³²² See, e.g., Scott Morton & Shapiro, *supra* note 2; Ram Menon & Kevin Spivak, *Trends in Mobile and Consumer Electronics*, 48 LES NOUVELLES 238, 239 (2013).

³²³ See Appendix C: PAE Special Order, Specification D.

³²⁴ The FTC’s question focused on whether the PAE knew that it held an encumbered patents because the Commission was interested in whether the PAE would use this information in licensing negotiations. SSO commitments would be underreported if Study PAEs and Holding Entities held patents that they did not know, or had not yet determined, were

Affiliates and Holding Entities, held any patents that had been committed to an SSO for licensing.³²⁵ The total number of patents known to be encumbered in this way comprised less than 1% of the total study sample.³²⁶ During the study period, approximately 75% of the patents identified as encumbered were licensed, but fewer than 25% of these patents were asserted in litigation. Finally, the proportion of overall holdings classified as encumbered did not differ significantly across the Responding PAEs that identified encumbered patents, which suggests that the FTC's sample did not include any PAEs that focused on monetizing SEPs.

Patent Age and Citation Patterns

Scholars have frequently used data on patent age and citations received as indicators of the economic value of a patent.³²⁷ To add more data to the discussion of the economic value of PAE patents, this section describes the age and citations of the patents in the study sample. Although these data cannot definitively prove or disprove any of the arguments in the literature about the relative value of PAE patents, they do provide the most comprehensive picture of the age and citations received for PAE-held patents to date.³²⁸

subject to an encumbrance. They may also hold patents that were not subject to a licensing commitment, or declared to a standard, but which may still be required to practice a standard.

³²⁵ Three of these Responding PAEs were Portfolio PAEs, and the fourth was a Litigation PAE.

³²⁶ Responding PAEs identified commitments to ANSI, ETSI, IEEE, IETF, ITU, ITU-T, and JEDEC. All of the SSO commitments required licensing the relevant patents on either FRAND or RAND terms, except for one commitment, which required royalty-free licensing.

³²⁷ See, e.g., Petra Moser et al., *Patent Citations and the Size of the Inventive Step—Evidence from Hybrid Corn* (Nat'l Bureau of Econ. Research, Working Paper No. 21443, 2015), <http://www.nber.org/papers/w21443.ack>; Bronwyn H. Hall et al., *Market Value and Patent Citations*, 36 RAND J. ECON. 16 (2005); Dietmar Harhoff et al., *Citation Frequency and the Value of Patented Inventions*, 81 REV. ECON. & STAT. 511 (1999); Cohen et al., *supra* note 94.

³²⁸ Factors reflecting the value of an invention are not necessarily determinative of its patentability or validity. While citations may be somewhat informative about the likelihood that a patent would be found invalid by a court, determining validity requires an extensive analysis of the patent's claims, prior art, and other factors.

PAEs Acquired Patents Several Years Before the Patents Expired

The age of a patent is frequently identified as one proxy for its quality or usefulness, and some commenters have addressed PAE assertion of late-term patents.³²⁹ The FTC calculated the age distribution of patents in the study sample.³³⁰ For this analysis, the FTC defined patent age as the time elapsed from the patent's earliest claim of priority.³³¹

Determination of the priority date was frequently not obvious from the bibliographic data.³³² To address differences in the priority date data, the Commission defined the priority date as the earliest application date of the related applications listed in the patent.³³³ This may have overestimated the age of a patent in some cases where the date, based on related applications, differed from other data sources; however the frequency and magnitude of these differences were small.³³⁴

³²⁹ See, e.g., Feldman et al., *supra* note 2, at 71–75; Love, *supra* note 92, at 1331–41; Ashley Chuang, *Fixing the Failures of Software Patent Protection: Deterring Patent Trolling by Applying Industry-Specific Patentability Standards*, 16 S. CAL. INTERDISCIPLINARY L.J. 215, 221 (2016).

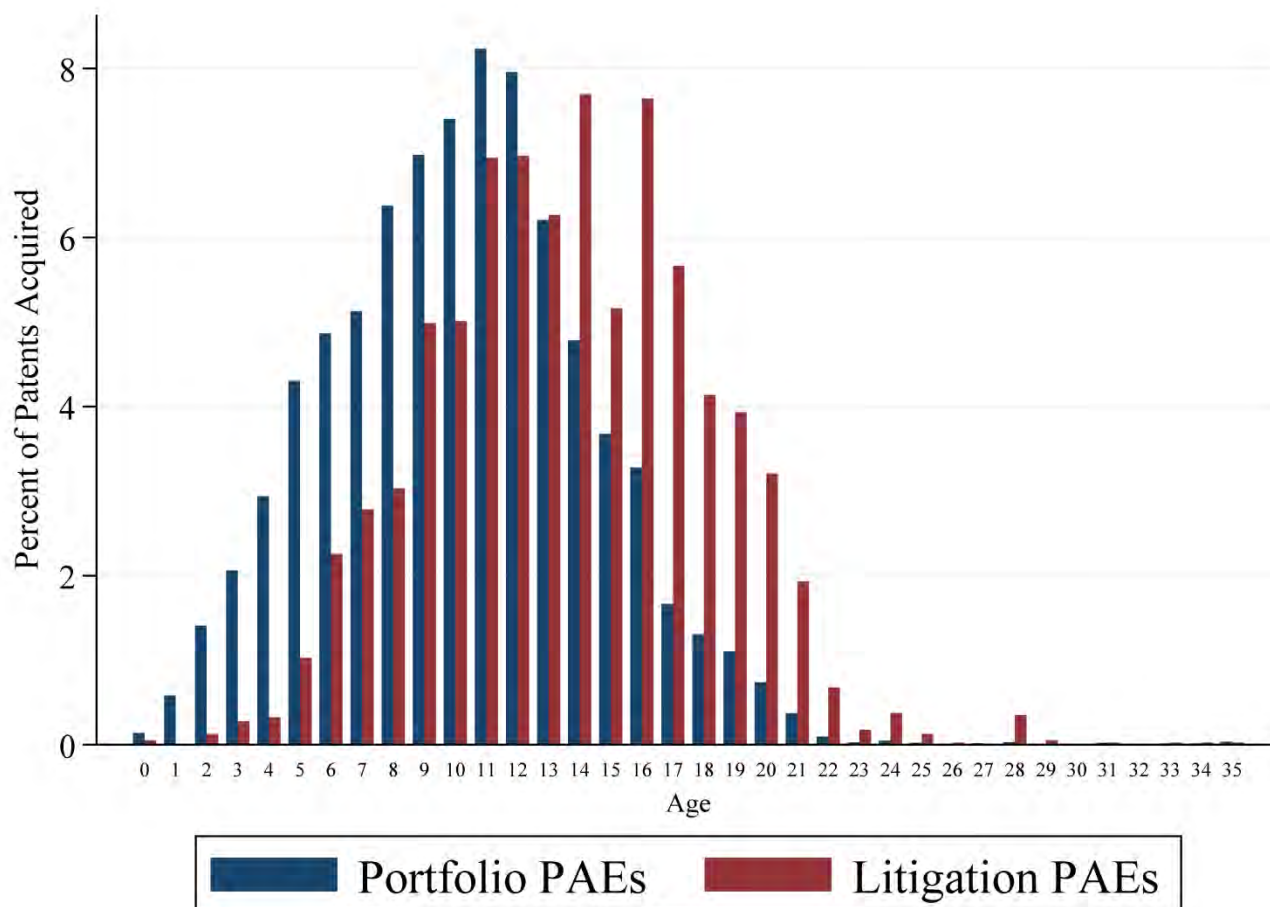
³³⁰ The FTC did not include design patents, plant patents, or patent applications in this analysis. See also Love, *supra* note 92; Risch, *supra* note 95 (including prior studies of PAE patent age).

³³¹ For all patents granted after June 8, 1995, the term of patent or patent life is defined as 20 years from the earliest filing date of all the applications from which the patent claims priority. The bulk of the patents in the study (over 80%) were granted after this date. The patent term for patents granted prior to June 8, 1995, is 17 years from the patent grant date.

³³² See Marco et al., *supra* note 312. Different publicly available data sets often have conflicting priority dates for the same patent due to the ability of applications to claim priority to one or more earlier related applications. The filing date of the parent application may not represent the priority date that a subject patent claims.

³³³ The bibliographic data do not include data on all related applications, only the applications that directly spawned a patent. If the parent application is a continuation of a previous application, or uses the Patent Cooperation Treaty to claim the priority date of a foreign patent application, the actual priority date can only be found in the USPTO data on related applications (a different data set than the bibliographic data set). The related applications data list all applications from which the patent derives priority. Frequently there are multiple applications for each patent. The FTC's algorithm simply took the earliest application date from this collection of applications. For example, consider a patent granted on May 1, 2006, which was submitted as an application on March 1, 2005. The application derived from abandoned applications and continuations that were filed on June 1, 2004; July 1, 2003; and March 1, 2002. For the calculation of age, the priority date was March 1, 2002.

³³⁴ Systematic overestimation of age was possible in one specific set of patents: patents where the related applications-based priority date was earlier than priority dates from both the USPTO Historical Masterfile and the Responding PAE. Only 11% of the non-application study patent sample (all priority date calculations excluded patent applications) fit this criteria. Within this set, the difference between the related applications-based date and the earlier of the two other measures was one year or less for 94% of patents.

Figure 5.5: Age Distribution of Study Sample Patents at Time of Acquisition

Note: Distribution of patent age of all patents held by each type of Responding PAE at the time of acquisition. Age was determined as the time elapsed from the date of the earliest claim of priority of the patent to the date it was acquired by the Responding PAE. Figure includes all patents acquired within the Study period, which were 57.5% of all reported patents. Approximately 0.1% of all patents were dropped for acquisition dates that preceded the patent's priority date.

Figure 5.5 shows the age distribution of PAE patents at the time of acquisition.³³⁵ Patents acquired by Portfolio PAEs were younger on average, with a mean age of 10.3 years (median 10), against a mean age of 13.6 years (median 14) for Litigation PAEs. The data suggest that most of the patents had several years of life remaining at the time of their acquisition. Furthermore, the FTC did not observe substantial age differences between patents that Study PAEs asserted and those that they did not assert. The

³³⁵ This analysis required data reported in patent acquisitions. See Appendix C: Special Order, Specification F. Therefore, only patents that were acquired during the time period of the study were included, which reduced the sample size to approximately 60% of the full set of study patents.

comparable age measures for litigated patents were a mean of 11.3 years (median 12) for Portfolio PAEs and a mean of 14 years (median 14) for Litigation PAEs.

Litigated PAE Patents Received More Citations than Average Patents

When a firm applies for a patent with the USPTO, it must disclose literature that it knows of that would be material to the patentability of its claimed invention.³³⁶ Often, this includes any previously-issued patents that relate to or that might limit the claims of the new invention. Moreover, as part of the patent application process, USPTO examiners perform their own search for relevant prior art. The issued patent cites all of the prior art that the examiner or applicant cited. The USPTO maintains a data set of the specific citations that each issued patent has received from other granted patents and applications. A large body of empirical literature has found that highly-cited patents are, on average, more valuable than less frequently cited patents.³³⁷ For this reason, patent citations are often seen as a proxy for patent quality.

The median patent held by a Study PAE or Holding Entity received six citations by the end of 2013. There was a significant difference between the number of citations received by the “typical” patent held by a Litigation PAE and that held by a Portfolio PAE. The median number of citations received by a Litigation PAE patent was 14 (mean 40.7) compared to six (mean 19.7) for a Portfolio PAE patent. As a comparison, the median number of citations received by the entire set of patents granted by the USPTO since 1990 was three (mean 9.8). Thus, compared to the overall population of patents, patents held by Study PAEs had more citations than the average patent granted over the same time period.

Factors unrelated to patent quality may have caused the mean or median number of citations received by patents in the study sample to differ from the overall population of patents granted since 1990. For example, older patents can receive more citations than more recently granted patents simply because they have had a longer period of time in which to be cited. Likewise, some technology categories tend to

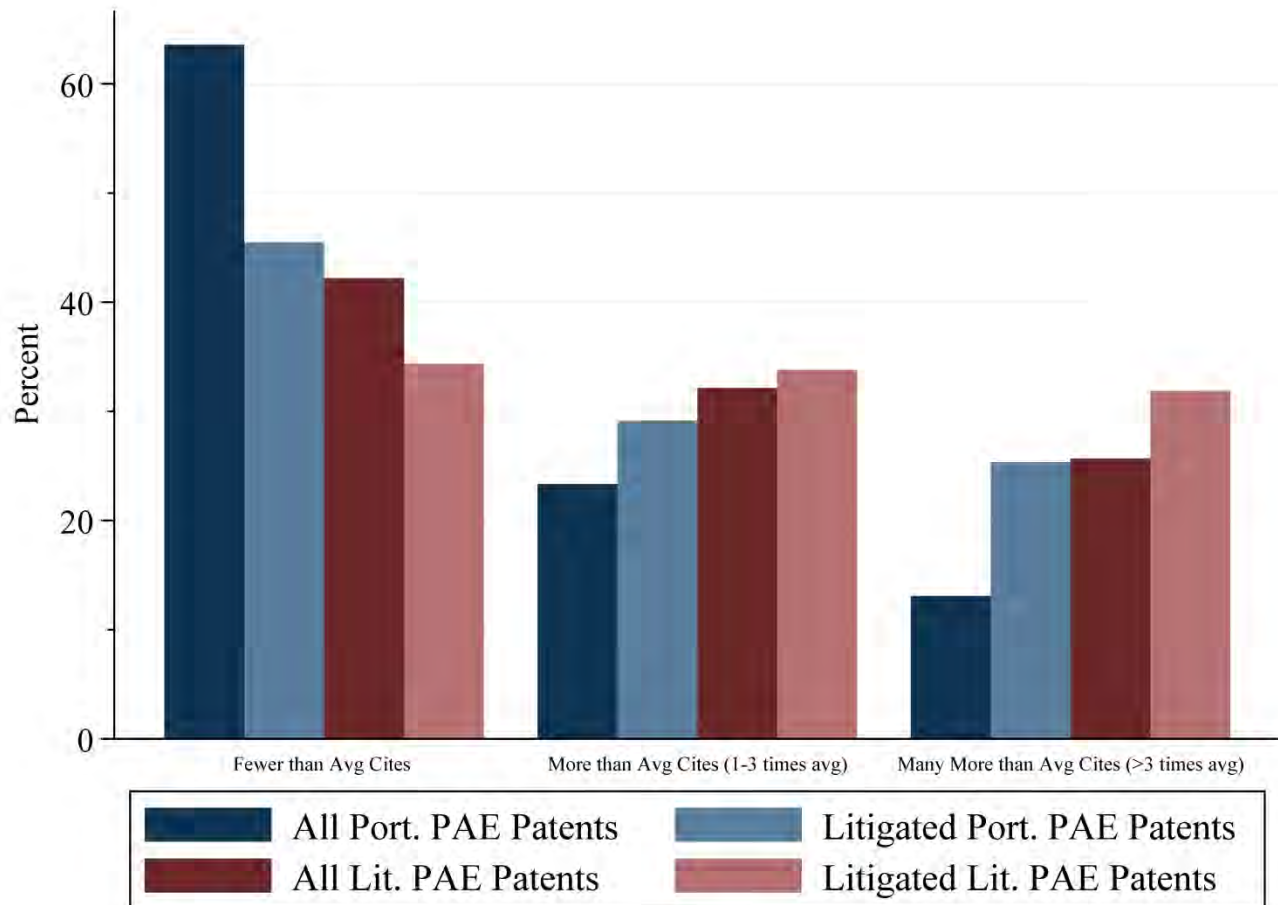
³³⁶ See 37 C.F.R. § 1.56 (2016).

³³⁷ See, e.g., Moser et al., *supra* note 327; Hall et al., *supra* note 327; Harhoff et al., *supra* note 327; Cohen et al., *supra* note 94.

receive more citations than other categories.³³⁸ As a result, the FTC compared the citation of the study sample patents to the overall population of all USPTO granted patents, controlling for a patent's age and technology category. The FTC implemented the control by creating technology category-grant year cohorts. Specifically, for each study sample patent, the FTC calculated the ratio of the number of citations received by the patent (as of December 31, 2013) to the mean number of citations received by all patents in the same technology category (the six NBER categories) and grant year cohort.³³⁹ In this case, a patent would be "less cited" as compared to the average cohort patent if its relative citation number was less than one and "more cited" compared to the average cohort patent if the measure was greater than one.

³³⁸ The economic literature teaches that it is critical to control for both age and technology effects before comparing the citation counts of different patents. ADAM B. JAFFE & MANUEL TRAJTENBERG, PATENTS, CITATIONS, AND INNOVATIONS: A WINDOW ON THE KNOWLEDGE ECONOMY (2002).

³³⁹ For example, Computers & Communications patents granted in 2010 would be a unique cohort for this analysis. The mean number of citations received by all USPTO granted patents in the 2010 Computers & Communications cohort (as of December 31, 2013) was 2.2. The relative citations measure for each Computers & Communications patent held by a Study PAE or a Holding Entity granted in 2010 was calculated by dividing the raw number of citations received by 2.2. If a Study PAE or Holding Entity patent in this cohort received 4 citations, then its relative citation measure would be $4/2.2 = 1.8$.

Figure 5.6: Relative Patent Citations Received by Study Sample Patents

Note: Distribution of relative citations received by patents held and litigated by each type of Study PAE and Holding Entity. Relative citations were determined by the ratio of the citations received by each patent to the average number of citations received by all PTO granted patents in that technology class-grant year cohort. The bars represent the proportion of each of the four sub groups of patents that received less than the average citations, one to three times the average citations, and more than three times the average citations of the patents in its cohort. The data include 97.6% of the utility, re-issue, and design patents reported by Study PAEs and Holding Entities.

Figure 5.6 shows the distribution of relative citations for all patents held by Study PAEs and Holding Entities. The cohort adjustments did not overturn the qualitative results of the raw citations analysis for Litigation PAEs. The mean number of relative citations for all Litigation PAE patents was 2.5 (median 1.4), meaning that these patents received, on average, 2.5 times the average number of citations received by a patent in their technology type-grant year cohort. The median patent in this group received 40% more citations than the average patent in its cohort. The difference between the mean and median figures and the distribution of relative citations to Litigation PAE patents in Figure 5.6 shows a subset of Litigation PAE patents with very high relative citation rates. For Portfolio PAE patents, the mean was

1.5 and the median was 0.6, meaning that Portfolio PAE patents received, on average, 50% more citations than the average for a patent in their technology category-grant year cohort. As in the Litigation PAE case, the average number was driven by a subset of highly cited patents: the median Portfolio PAE patent received 40% fewer cites than the average patent in its technology category-grant year cohort.

Finally, the FTC looked at whether litigated patents were cited more or less frequently than all patents held by either Study PAEs and Holding Entities, or all patents in the general population. The FTC found that litigated patents were cited more frequently than both the full population of patents and the patents in the study sample. Although it is rational for patent plaintiffs to litigate their highest cited patents, there may be non-quality related reasons for the higher citation rates of the litigated patents.³⁴⁰ Specifically, the academic literature has found that, strictly due to publicity surrounding patent litigations, litigated patents may be more widely known to the relevant inventive community and hence cited more frequently.³⁴¹ The data available do not allow the FTC to distinguish between these two effects.

For all Litigation PAE patents that formed the basis of a litigation, the relative citation measure yielded a median of 1.9 and a mean of 3.1 times the number of citations received on average by all patents in their technology category-grant year cohorts. For Portfolio PAE patents that were litigated, the median was 1.3 and the mean was 2.5. The increase of both the median and mean for Portfolio and Litigation PAEs shows that both PAE types tended to litigate their most cited patents. If citations are a reasonable indicator of quality, both types of PAEs tended to litigate higher-than-average quality patents based on citation measures. Overall, for Litigation and Portfolio PAEs, both the mean and median patent asserted in litigation had substantially more citations than that of the overall sample of in-force patents controlling for the patent's age and technology type.

³⁴⁰ For example, firms may prefer to litigate foundational patents with broader scope, which are then cited by patents on improvements and modifications that build on the foundation.

³⁴¹ Joshua Lerner, *Trolls on State Street? The Litigation of Financial Patents 1976-2005* (2006) (unpublished manuscript), www.people.hbs.edu/jlerner/Trolls.pdf; John R. Allison et al., *Valuable Patents*, 92 GEO. L. J. 435 (2004).

Study Patent Acquisitions Frequently Were Recorded with the USPTO

Verification of the ownership (or assignment) of a patent is an important part of a firm's evaluation of an infringement claim. In particular, an accurate record of ownership allows the accused infringer to confirm that it has not previously taken a license to the accused patent and to verify that the entity alleging infringement has standing to do so.³⁴² The USPTO allows parties to record patent and patent application assignments in an effort to maintain a clear chain of title and provide third-party notice of equitable interests in the patent.³⁴³ Thus, timely and accurate submissions of patent transfer records to the USPTO are an important part of ensuring transparency in patent disputes.

This section combines study data with USPTO records to measure how often Study PAEs and Holding Entities provided notice of their acquisitions to the USPTO. Responding PAEs were asked to identify all patents acquired during the study period. Responding PAEs also indicated the name of the entity which acquired the patents (which may be an Affiliate or Holding Entity of the Responding PAE), the name of the entity which transferred the patent, and the date of the transaction. Similarly, the data collected from notifications to the USPTO included the names of the assignee (entity receiving the patent), assignor (entity transferring the patent), and the date of the transfer. The similarity of the data from Responding PAEs and the USPTO allowed the Commission to analyze how often Study PAEs and Holding Entities recorded their acquisitions with the USPTO.

³⁴² See, e.g., *Advanced Video Techs. LLC v. HTC Corp.*, No. 11 Civ. 06604 (CM), 2015 U.S. Dist. LEXIS 122423, at *9 (S.D.N.Y. Aug. 25, 2015) (“Exploiting the patent-in-suit in these cases, U.S. Patent No. 5,781,788 (the ‘788 patent), was AVT’s sole reason for being. The only precondition to Plaintiff’s fulfilling its singular purpose was its acquisition of title to the ‘788 patent. Obtaining ownership of the patent was AVT’s *sine qua non*, the only thing Plaintiff absolutely had to accomplish in order to fulfill its destiny. At this simple task it proved an abysmal failure.”) (awarding sanctions under 35 U.S.C. § 285).

³⁴³ Alan C. Marco et al., *supra* note 312.

Table 5.1: Percentage of Acquired Patents with Acquisition Recorded in USPTO Reassignment Data

	Assignee Name matches	Assignee Name matches and PTO record date within one year of Acquisition Date	Assignee Name matches and PTO record date within 90 days of Acquisition Date
All Acquired Patents	95.5%	78.5%	66.9%
Portfolio Acquired Patents only	97.6%	79.1%	71.6%
Litigation Acquired Patents only	80.6%	74.3%	33.4%

Note: Percentages in each cell are of the full set of patents (excluding applications) which were directly acquired (not exclusively licensed) in the study period. The percentages indicate the fraction of patents in each row that meet the criteria specified in the column titles.

The FTC employed a basic word-matching algorithm that used patent numbers and acquiring entity names to identify USPTO assignment records corresponding to the study data.³⁴⁴ For reasons detailed in the methodology appendix, not all patents reported in the patent holdings and acquisition sections were included in this analysis.³⁴⁵ Patents not included fell into three categories: patents acquired outside of the study period, patent applications, and patents acquired via exclusive license. Of the approximately 20,000 patents included in the analysis, 95.5% matched the assignee name reported by the Responding PAE to an assignee (acquirer) name recorded for that patent at the USPTO.³⁴⁶ The FTC also measured how quickly the patent acquisitions were reported to the USPTO.³⁴⁷ For those

³⁴⁴ A patent number match alone was not sufficient to establish reporting by the Study PAE acquirers, as patents can be reassigned a number of times. Accordingly, to calculate Study PAE reporting rates, the algorithm attempted to match the name of the entity acquiring a patent reported by the Study PAE to the assignee of the patent in the USPTO data. A match was recorded as taking place if one of the assignee name fields in the USPTO data matched the acquirer name in the study data submitted to the FTC by Responding PAEs.

³⁴⁵ See Appendix B: Methodology.

³⁴⁶ All of the patents (approximately 5% of the total sample) with no match were manually checked to verify that there was no record of the PAE acquisition name in the USPTO data for that patent. Possible reasons for patents acquired by Study PAEs not being reported as assigned in the USPTO data include: failure of Study PAEs to notify the USPTO of the patent transfer, notification to the USPTO after the January 2015 cutoff date for inclusion in the USPTO data, and misreporting of the assignee names by Responding PAEs in the study data.

³⁴⁷ To determine the time duration between the transaction and USPTO notification, the FTC compared USPTO record dates for those transfers with successfully matched assignee names to the transaction dates reported by the Responding PAEs.

transactions that the FTC was able to match the reported acquisition data with the USPTO's assignment data, 70% were reported to the USPTO within 90 days of the acquisition date reported by the Responding PAE, and 82.1% were recorded at the USPTO within one year. Table 5.1 reports the percentage of acquisitions that the FTC was able to match with USPTO assignments. The last two columns indicate what percentage of acquired patents were recorded within one year, and within 90 days, of the reported acquisition date. Based on this analysis, the FTC found that Portfolio PAEs reported more of their patent acquisitions to the USPTO, and reported these acquisitions to the USPTO more quickly than did Litigation PAEs.

Conclusion

In analyzing patent characteristics, the Commission sought to provide a better understanding of the patents that PAEs monetize. In particular, the study found that the size of patent holdings differed significantly by PAE type. Regardless of type, the acquired patents were primarily in Computer & Communications and Electronics technology categories and Software-related classes. Although SSOs are relatively common in these technology categories, study patents were rarely identified as encumbered with commitments to SSOs. Study patents tended to have several years of their patent term remaining when acquired. Litigation PAE patents tended to receive more citations than Portfolio PAE patents, although the litigated patents of both PAE business models had more citations than the average in-force patent. Finally, most patent assignments were recorded with the USPTO, but there were differences in reporting frequency and speed by Responding PAE type.

This chapter's focus on the patents held by Study PAEs, together with the earlier chapters' discussions of their business models and assertion behavior, sheds new light on PAE activity and monetization practices, which will contribute to informed policy decisions by the FTC and other stakeholders.

Appendix A: Glossary of Frequently Used Terms³⁴⁸

“Acquire” and “acquisition” mean to purchase or obtain from another person any legal right to a patent, or to purchase or obtain a person who holds any legal right to a patent. This definition does not include the assignment of legal rights to a patent by a firm employee who is bound to assign his or her legal rights to the firm at the time of invention.

“Affiliate” means a firm identified by a Responding Firm in response to Specification B.2 that asserted patents during the study period.³⁴⁹ Specification B.2 required Responding Firms to identify all parents, wholly or partially owned subsidiaries, incorporated unincorporated divisions, affiliates, branches, joint ventures, franchises, operations under assumed names, websites, or other person(s) over which the firm exercises or has exercised supervision or control since January 1, 2009. There are 327 Affiliates in the study.

“Assert” and “assertion” mean: (i) any demand; (ii) any civil action threatened or commenced (by the firm or other person) relating to any patent; or (iii) any investigation pursuant to 19 U.S.C. § 1337 threatened or initiated (by the firms or other person) relating to any patent; and (iii) any license by the patent holder to practice the claimed invention, including, but not limited to, a covenant not-to-sue and a covenant not-to-assert. For Wireless Manufacturers, “assert” and “asserted” do not include sales of products manufactured by the Wireless Manufacturer, or on its behalf, that practice the claimed invention.

“Case” means the unit of observation defined as a matter between a particular plaintiff and a particular defendant involving a particular set of asserted patents. The FTC refers to this unit of observation when presenting its litigation analysis.

“Demand” means the first effort since January 1, 2009, to license any patent, in whole or in part, and any other attempt to generate revenue by authorizing a person outside the firm to practice an invention

³⁴⁸ For reader ease, the FTC did not capitalize all defined terms in the report. These terms do not have another meaning, unless otherwise noted.

³⁴⁹ Firms identified in response to Specification B.2 that held but did not assert patents are called “Holding Entities.”

claimed in a patent. Demand does not include complaints or pleadings filed with a United States District Court or the United States International Trade Commission.

“Held” means to possess a legal right to a patent, where “legal right” means any ownership interest in, an exclusive license to, or other rights adequate to license or enforce a patent.

“Holding Entity” means a firm identified by a Responding Firm in response to Specification B.2 that held but did not assert patents during the study period. Specification B.2 required Responding Firms to identify all parents, wholly or partially owned subsidiaries, incorporated unincorporated divisions, affiliates, branches, joint ventures, franchises, operations under assumed names, websites, or other person(s) over which the firm exercises or has exercised supervision or control since January 1, 2009. (Firms identified in response to Specification B.2 that did assert patents are called “Affiliates.”) There are 2,189 Holding Entities in the study.

“Litigation” means any civil action commenced in a United States District Court or with the United States International Trade Commission.

“License” means authorization by the patent holder to practice the claimed invention, including, but not limited to, a covenant not-to-sue and a covenant not-to-assert.

“Non-practicing entity” or “NPE” means patent owners that primarily seek to develop and transfer technology.³⁵⁰ For Chapter 4 only, “NPE” means an NPE whose data are reported in the Wireless Case Study.

“Patent” means a United States patent or United States patent application as defined by 35 U.S.C. § 101, *et seq.*

“Patent assertion entity” or “PAE” means a firm whose business model primarily focuses on purchasing and asserting patents.³⁵¹

³⁵⁰ FTC EVOLVING IP MARKETPLACE REPORT, *supra* note 1 at 8 n 5.

³⁵¹ *Id.*

“PAE Special Order” means the information requests sent to Responding PAEs pursuant to Section 6(b) of the Federal Trade Commission Act, 15 U.S.C. § 46(b).³⁵²

“Responding Firm” means any Responding PAE or any Wireless Manufacturer or NPE respondent from the Wireless Case Study.

“Responding PAE” means one of the 22 PAEs who received the PAE Special Order and submitted information used in this study.

“Standard setting organization” or “SSO” means any organization, group, joint venture, or consortium that develops standards for the design, performance, or other characteristics of products or technologies.

“Study PAE” means any PAE for whom this study presents patent assertion data. The group of Study PAEs includes any Responding PAE or Affiliate that engaged in assertion activity.

“Study period” means January 1, 2009, through September 15, 2014.

“Subject Firm” means all firms that received a demand, were a defendant in patent litigation, or were a licensee of one (or more) of the Responding Firms or their Affiliates.

“Wireless chipset” means any baseband processor, radio frequency transceiver, integrated circuit, chip, or chipset, or any combination thereof, and any related software, used to implement wireless communication.

“Wireless communications device” means any device, including wireless chipsets, which implements wireless communication, including, but not limited to, software, user equipment, base stations, and network infrastructure.

“Wireless Manufacturer” means, for purposes of the Wireless Case Study, a manufacturer whose data are reported in the Wireless Case Study.

“Wireless patent” means any patent asserted against a wireless communication device.

³⁵² Appendix C reproduces the PAE Special Order.

“Wireless Respondents” includes all PAEs, Wireless Manufacturers, and NPEs discussed in the Wireless Case Study.

“Wireless Case Study Special Order” means the information requests sent to Wireless Manufacturers and NPEs pursuant to Section 6(b) of the Federal Trade Commission Act, 15 U.S.C. § 46(b).³⁵³

³⁵³ Appendix D reproduces the Wireless Case Study Special Order.

Appendix B: Methodology

Introduction

To collect information, the FTC sent Excel spreadsheets to Responding Firms³⁵⁴ reflecting a subset of the questions in the Special Orders.³⁵⁵ The Commission designed the spreadsheets to facilitate quantitative analysis by providing common definitions for variable construction and an identical format for responses. However, as is the case in any empirical study using data from multiple different respondents, in some cases we needed to modify or augment the submitted data for our statistical analyses. This Appendix highlights the major data-related challenges encountered in this study and describes how they were addressed.

Differences in Response Rates by Question

The Special Order directed Responding Firms to review their internal records including, but not limited to, patent license agreements, patent purchase agreements, litigations, patent holdings, patent demands, agreements with contingency counsel, and financial records to provide information to the FTC.

Responding Firms had significantly different response rates to different Special Order questions. For example, Responding Firms did not have difficulty identifying whether licenses contained a field-of-use or geographic use restriction. For other questions however, a significant fraction of Responding Firms either did not maintain responsive data, or only maintained responsive data for only a subset of their records. The FTC discussed these issues with Responding Firms, and directed them to produce the information that they held. As a result of this reporting issue, the number of responses used to construct the statistics presented in the report varies by question. In each table or figure, the Commission reports the number (or fraction) of responses used to construct the statistic.

³⁵⁴ For this methodological appendix, “Responding Firms” refers to all Responding PAEs from the general PAE study and all Wireless Manufacturer and NPE respondents from the Wireless Case Study.

³⁵⁵ See Appendix C: PAE Special Order; Appendix D: Wireless Case Study Special Order. The associated spreadsheet templates are available on the study website. *Patent Assertion Entities (PAE) study*, FED. TRADE COMM’N, <https://www.ftc.gov/policy/studies/patent-assertion-entities-pae-study>. (PAE Study Response Workbook A was sent to Responding PAEs. PAE Study Response Workbook B was sent to Wireless Manufacturer and NPE respondents.) A number of the analyses conducted in this study use data from these spreadsheets.

Identifying Subjects of Patent Assertion

For a number of the analyses in the report, the Commission needed to identify all of the firms that received demands from, were sued by, or entered into licenses with, Responding Firms. Two issues complicated our ability to identify these Subject Firms.³⁵⁶ First, in reviewing the data submitted, it was clear that the names associated with specific licensees, defendants, and/or demand recipients varied across Responding Firms and, in some cases, within the individual responses of a single Responding Firm. For example, one Responding Firm may refer to a licensee as “XYZ.com,” while another Responding Firm referred to the identical firm as “XYZ Inc.” Left uncorrected, these records would appear to be associated with different firms when in fact they represented the same Subject Firm.

Second, Responding Firms may have named related entities as defendants in a lawsuit, or as licensees.³⁵⁷ For example, a Responding Firm may have sued “ABC Holdings,” “ABC Manufacturing,” “ABC Distributing,” and “ABC Consulting” where all of the entities were controlled by ABC Holdings. Or, it may have named two defendants with seemingly unrelated names (CDE, Inc. and LMN Co.) when, in fact, both were subsidiaries of a common parent.³⁵⁸ Because the FTC wanted to focus on the number of independently operated entities affected by PAE assertion activity, and did not want to over-report activity because a Responding Firm named multiple related entities,³⁵⁹ we attempted to match all variations on a Subject Firm’s name to a single, common name, and to match all names of commonly owned firms to a single parent firm.³⁶⁰ In other cases, two entities with very similar names were unrelated. For instance, XYZ Manufacturing and XYZ Consulting Services may have been named as defendants, but they had no relationship to each other. In this case, the FTC did not match these names. Across all of the assertion spreadsheets (corresponding to demands, litigations and licensing), the data

³⁵⁶ “Subject Firms” means all firms that received a demand, were a defendant in patent litigation, or were a licensee of one (or more) of the Responding Firms or their Affiliates.

³⁵⁷ In general, a plaintiff in any litigation may name related firms as defendants.

³⁵⁸ This discussion relates to multiple related defendants, not joinder of unrelated defendants addressed in the Leahy-Smith America Invents Act. *See* 35 U.S.C. § 299 (2012).

³⁵⁹ If the FTC had simply counted the number of named firms in a litigation, or its related license, then it may have over-reported activity based on the number of named related firms.

³⁶⁰ For instances where names were similar but not identical, we conducted Internet searches to see if they represented the same or different firms. Likewise, when multiple defendants were listed in a litigation, we conducted an Internet search to determine whether they were related to a common parent.

contained more than 9,100 variants of firm names (either because of spelling or a related-entity relationship). We determined that these 9,100 names corresponded to approximately 4,950 independently operated entities that were subjects of assertion.

Transforming Docket-based Data Entries to Cases

The FTC required Responding Firms to provide data describing all patent infringement litigations they commenced in U.S. District Court and investigations they started before the U.S. International Trade Commission (ITC) between January 1, 2009 and September 15, 2014 (the “study period”), with a separate spreadsheet entry for each defendant.³⁶¹ After reviewing Responding Firms’ responses, the FTC addressed two general measurement issues before analyzing the data.

First, Responding Firms that named multiple defendants in a single complaint did not always provide separate data entries for each defendant. The FTC separated these multi-defendant observations into separate observations for each defendant. In those records where multiple defendants were listed in a single observation, the Responding Firms indicated whether only some of the defendants settled, and which ones. Using this information, the FTC was able to attribute correctly outcomes to the defendants when we separated the multi-defendant observations into separate observations for each defendant.

Second, the data request specified that Responding Firms provide a separate data entry for each docket in which they were a plaintiff. Reporting the data based on docket number created potential measurement problems. For example, when a case was filed in one jurisdiction and transferred to a second jurisdiction, there were two docket numbers associated with this single patent dispute. Alternatively, when a Responding Firm sued multiple defendants in separate actions and these cases were later joined, there were multiple docket numbers associated with the same patent dispute. To avoid incorrectly measuring the number of patent disputes, the FTC created a unit of observation defined as a matter between a particular plaintiff and a particular defendant involving a particular set of asserted patents. The FTC defines this unit of observation as a “case.” The FTC converted the docket-based data

³⁶¹ While some Responding Firms provided information regarding litigations filed after the study period, this information was not included in the data used for analysis.

entries to the case observations used in the analysis using the four rules specified below.³⁶² These rules assured that the retained case observation had the appropriate consolidated information from the potentially multiple docket number-based entries.

To transform the potentially multiple docket number-based data entries into a single case observation (i.e., a single observation for a dispute between a plaintiff and a defendant over specific patents-at-issue), the FTC implemented four rules. First, the FTC identified the docket that represented the status of the litigation as of the close of our study period as the outcome of the litigation and kept this observation as the case observation. The information on the status of the litigation included the variables listed in the H.2 spreadsheet that describe the final disposition of the litigation.³⁶³ Second, to measure the duration of a case, the FTC defined the beginning of a case to be the first complaint date for any docket where the plaintiff sued the defendant for infringement on the specific asserted patents.³⁶⁴ Third, to measure the degree to which plaintiffs favored certain jurisdictions in filing infringement lawsuits, FTC retained the identity of the jurisdiction associated with the first complaint filed by the plaintiff against the defendant on the specific patents-at-issue (rather than the final jurisdiction where a lawsuit terminated) and associated that district with the case. Fourth, because patents may be added to or removed from litigation during the course of a patent dispute, the FTC created a new patent field for the case observation that consisted of the union of all patents-at-issue that were asserted against a defendant by a plaintiff as long as there was a single patent-at-issue in common across the dockets submitted by the Responding Firms. This new patent field allowed the tracking of a case over time even as the set of patents named in the litigation changed. The FTC considered observations with the same plaintiff and defendant but without any common patents-at-issue to be separate cases. Using these rules, the FTC created a case-based observation that reflects key characteristics of the patent dispute: plaintiff, defendant, patents-at-issue, initial complaint date, plaintiff's selected district, and the outcome or status

³⁶² After separating multiple defendant observations into separate observations for each defendant, 22% of observations were dropped in reducing the data to a unique case.

³⁶³ For example, variables could describe whether: the court awarded damages, the litigation was pending, there was a court order on the claims of asserted patents, there was a court decision on the merits, or if the litigation was settled with a patent license agreement, and the settlement date if the litigation settled. *See* Appendix C: PAE Special Order.

³⁶⁴ This approach is similar to that employed by Gwendolyn G. Ball and Jay P. Kesan. Ball & Kesan, *supra* note 95; Kesan & Ball, *supra* note 208.

of the dispute as of the end of the study period. This case observation is the unit of observation applied in the litigation analysis in Chapter 3 and Chapter 4.

Identifying Unique Patent Licenses

The FTC Special Order required Responding Firms to describe each license agreement separately for each unique licensee. For approximately 14% of responses, Responding Firms identified several unique licensees in the licensee field, but then described the characteristics of the licensees as a group.³⁶⁵ For example, a Responding Firm's spreadsheet entry might identify six unique licensees in the licensee column, but then report the characteristics corresponding to the license agreement for all six licensees.³⁶⁶ The FTC spoke to Responding Firms about this issue. In some instances, Responding Firms responded in this way because several parties were licensees to the same agreement. To address this issue, we created separate records for each licensee/licensor pair licensing a specific patent portfolio. Thus, in the example above, the FTC transformed the single license containing six licensees into six distinct licenses where all six licenses were assumed to have the same characteristics. For Figures 3.9 and 4.7, we further assumed that each licensee paid an equal patent license fee; that is, the license fee paid by a licensee was defined to be the total revenue associated with the license divided by the number of licensees listed in the record.³⁶⁷ In the aggregate, the data submitted to the FTC contained 2,346 records describing licensing agreements. When we transformed the data so that each observation corresponded to a distinct licensee/licensor licensing a specific set of patents, the number of records increased to 2,715.

³⁶⁵ The fraction of multiple licensees that were listed in a single license agreement (14%) corresponds to the data set after it was modified to identify unique subjects of patent assertion as described in this Appendix.

³⁶⁶ As discussed in the Chapter 3, virtually all Litigation PAEs obtained most (or all) of their patent license agreements after suing the licensee. Litigation PAEs often maintained their financial records to track the litigation they have engaged in. In reporting the terms of the license agreement, the information reported to the FTC was often aggregated to the level of the underlying litigation that generated the licensing agreement.

³⁶⁷ The Commission used observations that had an imputed "average revenue" measure of the patent royalty in constructing the frequency distribution of all royalties paid in both Chapter 3 (Figure 3.9) and Chapter 4 (Figure 4.7). However, the Commission did not use these "average revenue" observations in analyzing the variation in patent payments (Figure 3.10a and Figure 3.10b). By construction, there was no variation in the imputed patent royalties in the context of "average revenue" observations for the firms identified in a single record. Including these "imputed royalties" in "average" observations would induce an important bias into the royalty variation analysis, likely substantially understating the degree of variation in patent royalties for identical patents.

PAE Patent Licenses with Zero Reported Revenue

In approximately 12% of the licenses, the Responding PAEs attributed zero revenue to the license.³⁶⁸ After talking to the Responding PAEs, the FTC identified two explanations for this attribution. In the first scenario, the Study PAE entered into a royalty-free license to settle litigation.³⁶⁹ In the second scenario, a Responding PAE or its Affiliates brought multiple patent infringement suits against the same defendant.³⁷⁰ Typically, different Affiliates were plaintiffs in these multiple suits. The defendant then settled all litigations simultaneously with the Responding PAE and/or its Affiliates. The FTC discussed this scenario with respondents and learned that when reporting this settlement to the FTC, the Responding PAE did not attribute all license revenue to all reported litigations. For example, Affiliate 1, Affiliate 2, and Affiliate 3 of Responding PAE 1 each may have sued United Manufacturing for patent infringement. The three Affiliates may then collectively have settled litigation in one license agreement valued at \$1 million. When reporting this information to the FTC, the Study PAE attributed \$750,000 to Affiliate 1, \$250,000 to Affiliate 2, and zero dollars to Affiliate 3. Even though United Manufacturing paid \$1 million to license patents from Affiliate 1, Affiliate 2, and Affiliate 3, the Responding Firms records would indicate that one license carried zero value. To avoid inducing reporting measurement error into the report, we only used observations reporting positive license revenues when constructing revenue statistics for Study PAEs including: the size of a licensing payment, and whether licensing payments were lump sum and/or related to the ongoing sales of the licensed products.

Identifying Subject Firms' Industries

To develop a better understanding of the industries that were subject to assertion by Responding Firms, we needed to assign each of the approximately 4,950 Subject Firms that received a demand, were a defendant in patent litigation, or were a licensee of one (or more) of the Responding Firms or their

³⁶⁸ Wireless Manufacturers also frequently reported zero-royalty patent licenses. However, these agreements almost always included cross-licenses, and the cross-license likely generated the value of the patent license.

³⁶⁹ Plaintiffs may accept a zero-value settlement to avoid the risk that the defendant will establish that the patents issue are invalid.

³⁷⁰ We did not observe this behavior for Wireless Manufacturers or NPEs.

Affiliates to a single industry.³⁷¹ To do this, the FTC adopted the U.S. Census’s North American Industry Classification System (NAICS) to assign Subject Firms to industries.³⁷² The NAICS categorizes industries at different levels of specificity, depending on the level of detail at which researchers want to study an industry. The broadest categorization of an industry by the NAICS is at the two-digit level, and the narrowest categorization is at the six-digit level.³⁷³ As is discussed in more detail below, we generally used the two-digit level but expanded our categorization to the three-digit level for the industries that had significant concentrations of Subject Firms.

Many Subject Firms operated in multiple NAICS industries, which complicated the assignment of unique NAICS industry codes to the Subject Firms. For example, many Subject Firms manufactured computers and electronic products (NAICS code 334). While the primary business of these firms was manufacturing, many of these firms also provided services related to the products they sell. Since our goal was to provide the reader with general information about the industries that were most affected by PAE activity, we defined a Subject Firm’s industry as the industry that it “primarily” operated in; that is, the industry that accounted for most of its activity. We used LexisNexis’s Corporate Affiliations business database to build the correspondence between the Subject Firms in our data and their primary industry.³⁷⁴

Approximately 22% of Subject Firms could not be matched to a NAICS code using the Corporate Affiliations business database. This problem was especially pronounced for the Wireless Manufacturer

³⁷¹ We assigned industry designations to the Subject Firms after eliminating duplicate names using the methodology described above. *See supra* notes 356–360 and accompanying text.

³⁷² The NAICS classification system maps economic activity to specific industries, and is the “standard used by Federal statistical agencies in classifying business establishment for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.” *Introduction to NAICS*, U.S. CENSUS BUREAU, <http://www.census.gov/eos/www/naics/index.html>. *See also 2012 NAICS*, *supra* note 200.

³⁷³ For example, a firm engaged in automobile manufacturing would be categorized at the highest level as being in the “Manufacturing” industry (with a two-digit NAICS code of 33). Automobile manufacturing can then more precisely be defined as being in the “Transportation Equipment Manufacturing” industry (with a three digit NAICS code of 336), the “Motor Vehicle Manufacturing” industry (with a four digit NAICS code of 3361), the “Automobile and Light Duty Motor Vehicle Manufacturing” industry (with a five digit NAICS code of 33611), or the “Automobile Manufacturing” industry (with a six digit NAICS code of 336111). *See id.*

³⁷⁴ LexisNexis’s Corporate Affiliations business data set reports primary and secondary NAICS codes for most firms operating in the United States. To determine the NAICS code corresponding to a Subject Firm in our sample, we entered a Subject Firm’s name into the database and recorded its NAICS code. *See Corporate Affiliations: Content FAQs*, LEXISNEXIS, <http://www.corporateaffiliations.com/Nonsub/Bio/AboutContentFAQ>.

and NPE demand recipients and licensees. We suspect that these firms were not assigned an NAICS code because they were relatively small foreign firms without U.S. operations (typically manufacturers of computer and electronics products). To increase the fraction of firms for which we could assign an industry, we conducted an Internet search to determine the primary industry of the unassigned Subject Firms and applied the industry definitions provided by the NAICS. Ultimately, we were able to match the vast majority of Subject Firms to primary industries. We matched 96% of Subject Firms described in Chapter 3, Patent Assertion, to their primary industries, and we matched 94% of Subject Firms described in Chapter 4, the Wireless Case Study, to their primary industries.

As discussed above, the NAICS categorizes industries at different levels of specificity, ranging from the broadest two-digit level to the narrowest six-digit level. We used a data-driven approach to determine level of specificity that would best describe our data. We first categorized Subject Firms at the broadest level (two-digit) and noticed that a large proportion of firms in the sample fell into two broad industry categories: “Manufacturing” (NAICS codes 31–33) and “Information” (NAICS code 51). For Subject Firms in these two categories, we analyzed three-digit NAICS codes to gain more insight into which sub-industries appeared to be especially prominent in the sample. Among manufacturers, we found that a large fraction of firms operated in one three-digit industry category (“Computer & Electronic Product Manufacturing”), and that the industries that other manufacturers operated in were quite diffuse. For this reason, we report data for two categories of manufacturers: “Computer & Electronic Product Manufacturing” (NAICS code 334) and “Manufacturing, all other,” defined as all manufacturers that do not have a three-digit NAICS code of 334. Similarly, within the “Information” industry, we noticed that there were a large number of firms operating in “Telecommunications” (NAICS 517) and “Broadcasting” (NAICS 515) industries. Because many of the firms categorized as being in the “Telecommunications” or “Broadcasting industries” were so similar (these firms tended to have large operations in both what the NAICS categorizes as “Telecommunications” and “Broadcasting”), we created a combined industry of “Telecommunications and Broadcasting” (NAICS 515 and 517). The remaining firms operating within the “Information” industry (NAICS two-digit code 51) but not having an NAICS code of 515 or 517 are reported as “Information, all other.”³⁷⁵ Finally, a relatively large number of the Subject Firms were classified as holding companies, which the NAICS places in an

³⁷⁵ “Information (other)” industry includes, but is not limited to, firms operating as “Software Publishers” (NAICS 5112), “Motion Picture and Sound Recording firms” (512), and “Internet Publishing and Broadcasting and Web Search Portals” firms (51913). 2012 NAICS, *supra* note 200.

industry called “Management of Companies and Enterprises” (NAICS two-digit code 55). All or most of the Subject Firms that were holding companies operated in a single industry (typically “Finance and Insurance,” NAICS two-digit code 52, or “Retail Trade,” NAICS two-digit codes 44–45). To describe more accurately the industries in which the Subject Firms operated, we have recoded the industry classification of holding companies to be the holding company’s secondary industry code that corresponds to the industry in which that the holding company’s subsidiary firms operate.

We constructed two data sets containing Subject Firms analyzed for Chapter 3 and the Subject Firms analyzed for Chapter 4. In each chapter, we reported the relative frequencies separately for the six industries that appeared most frequently in the assertion data and created seventh category “All Other Industries” to capture the remaining industries. For Chapter 3, the six largest industries were “Computer & Electronic Product Manufacturing,” “Manufacturing, all other,” “Retail Trade,” “Telecommunications and Broadcasting,” “Finance and Insurance,” and “Information, all other.” For Chapter 4, the six largest industries were “Computer & Electronic Product Manufacturing,” “Manufacturing, all other,” “Retail Trade,” “Telecommunications and Broadcasting,” “Professional, Scientific, and Technical Services,” and “Information, all other.” The relative frequencies were reported in Figures 3.3, 3.5b, 3.5c, 3.13, 4.2, 4.4, and 4.8.

Counting PAE Acquisitions Recorded at the USPTO

All patent acquisition calculations were made at the level of a patent. There were two reasons for using a patent as the level of observation: (1) the data were reported by Responding PAEs and recorded by the USPTO on a patent by patent basis; and (2) for many transactions, most of the transferred patents were recorded at the USPTO but some of the patents in the same transfer did not have a USPTO record of that transaction. The inconsistencies of reporting for patents in the same transaction prevented any analysis at the level of a transaction.

The full data set of patents reported to the FTC in response to the questions in Specification C or Specification F contained approximately 45,000 patents and applications. In measuring the fraction of patent acquisitions reported to the USPTO, the Commission included only patents acquired by Responding PAEs and their Affiliates and Holding Entities during the study period. Removing patents listed only in Specification C and patents with an acquisition date outside of the study period left approximately 25,000 patents and applications.

Patent applications listed by Responding PAEs in their acquisition data did not appear to match consistently to the USPTO assignment data. In particular, in a number of large patent transactions the FTC was able to match all of the included utility patents reported by the Responding PAE to an assignment in the USPTO data, while only matching a much lower percentage of the patent applications included in the transactions. For this reason, patent applications were not included in the analysis. Dropping patent applications left approximately 21,500 patents. Finally, PAEs can acquire the right to assert patents via exclusive licenses, which are not recorded in the USPTO assignment data. Removing patents that were obtained through an exclusive license rather than assignment left approximately 20,500 patents for the assignment calculations.

Responding PAEs provided data that contained the name of the entity that acquired the patents, the date of the transaction, and the name of the entity that transferred the patents. These fields allowed the Commission to match transactions between the data reported to the FTC and the USPTO using multiple variables. Since name matches can be missed due to slight differences in reporting (LLC vs L.L.C. or Inc.), the matching algorithm matched names based on the first word reported in the name field. Matches where the first word in a variable was two characters or less were expanded to include the first two words in the field to avoid over-matching on common terms (e.g., Dr. or Mr.). Manual inspection of a five percent sub-sample of patents showed that the first word or first two words were sufficient to match names accurately.

Methodology to Select Study Subjects: Additional Information

The FTC sought, and received, approval from the Office of Management and Budget (OMB) to collect the information discussed in this Report.³⁷⁶ As part of this process, the FTC described its methodology to select study subjects.³⁷⁷ The Commission explained that it would sample PAE subjects based on measures of patent holdings and litigation activity provided by Patent Freedom and RPX. The FTC further explained that after the initial sample was constructed, “[t]he FTC [would] then research whether

³⁷⁶ Under the Paperwork Reduction Act, 44 U.S.C. §§ 3501–21, federal agencies must obtain approval from OMB for each collection of information they conduct or sponsor. “Collection of information” means agency requests or requirements that members of the public submit reports, keep records, or provide information to a third party. 44 U.S.C. § 3502(3) (2012); 5 C.F.R. § 1320.3(c) (2016).

³⁷⁷ See Fed. Trade Comm’n, *Supporting Statement for a Paperwork Reduction Act Submission to OMB, FTC Study of Patent Assertion Entities, Part B*, *supra* note 154 (describing the FTC’s selection methodology in more detail).

the selected firms meet the FTC’s definition of a PAE (i.e., firms with a business model based primarily on purchasing patents and attempting to generate revenue by asserting the intellectual property against persons who are already practicing the patented technology).³⁷⁸ This section describes the further steps the Commission took to determine whether initially selected firms were PAEs.³⁷⁹

After constructing the initial sample, the FTC used publicly available information to confirm that each identified firm met the FTC’s PAE definition. Using USPTO assignment data and U.S. federal district court litigation data, the FTC examined whether each firm acquired patents from a third-party and then asserted those patents. The FTC also used publicly available information to confirm that selected firms were not engaged in manufacturing. The FTC did not include several identified firms in the study because the research indicated that these firms were former operating companies who asserted patents developed internally and did not license patents acquired from third parties.³⁸⁰

In addition to confirming that selected firms were engaged in PAE activity, the FTC also wanted to identify the firms’ controlling entities. The FTC’s Special Order required that the Responding PAE provide an answer on behalf of all of its related firms; therefore, the Commission needed to identify the controlling entity upon which to serve that request. The FTC also wanted to establish that such a person had control over information that it requested regarding each related firm. In addition, as a practical matter, the FTC required the name and address of a person or firm to hold accountable for each request.

³⁷⁸ *Id.* at 3.

³⁷⁹ When describing the selection methodology for NPEs in the Wireless Case Study, the FTC explained that, “[b]ecause the FTC is relying on third party estimates of NPEs for the initial selections, the FTC will select more NPEs than are ultimately included in each stratum to create a candidate sample. After the initial selection is complete, the FTC will sort the selected candidate sample NPEs within each stratum according to their activity score. FTC staff will then research whether the selected firms meet the FTC’s definition of an NPE (i.e., firms with a business model based primarily on developing and transferring their patented technologies) and whether the firm is asserting patents in the wireless chipset sector.” *Id.* at 6. Because the FTC used similar processes to identify whether initially selected firms were PAEs or NPEs, this methodology discussion also applies to NPE selection for the Wireless Case Study. For Manufacturing firms in the Wireless Case Study, the sample included eight manufacturers of wireless chipsets who collectively represent the majority of wireless chipsets manufacturing. *Id.* at 4.

³⁸⁰ While the FTC screened each firm to ensure that it was a PAE before sending the Special Order, the FTC removed one firm from the study because nonpublic information received in response to the information requests indicated that the firm did not meet the definition of a PAE. The FTC also removed two firms from the study because the firms had wound down their operations and did not maintain adequate records to provide a full response to the information requests.

In some cases, the selected firm publicly disclosed information adequate to identify the controlling firm. Some firms were publicly traded and filed disclosures with the SEC, while others maintained websites. Several selected firms were mentioned in news articles or SEC filings. Most controlling firms, however, lacked any such public presence; the only public footprint of their activity consisted of pleadings filed by their related entities, typically limited-liability companies or corporations. Using the identity of the related entity as a starting point, the FTC collected information from a variety of public sources.

First, the FTC reviewed assignment records reflecting each patent assignment to the identified firm. The USPTO maintains a publicly available database of patent assignment records. Recording patent assignments with the USPTO is voluntary: failure to record an assignment will not affect the validity of the assignment, if there is no competing claim to ownership of the patent.³⁸¹ Assignment documents are available for inspection at the USPTO.³⁸² The USPTO also maintains a website that provides some summary information regarding the recorded assignments.³⁸³ For each assignment, the website provides information regarding the patents transferred, date of the assignment, the name and address of the assignor and the assignee, and the name and address of the party to whom correspondence regarding the record should be mailed.³⁸⁴ The database can be searched using these fields. For each known related entity, the FTC would generally search first to identify all patents assigned to the related entity and then search to identify each firm in the chain of title for those patents. Depending on the nature of the chain of title, the FTC was also sometimes able to identify additional related entities by examining the assignment activity of firms in this chain of title.

Next, the FTC identified the litigations filed by each identified firm and reviewed their dockets and case filings. The Federal Rules of Civil Procedure require litigants to provide basic information identifying related entities that may have an interest in the outcome of their litigation. Federal Rule of Civil Procedure 7.1 requires parties to identify “any parent corporation and any publicly held corporation

³⁸¹ See 35 U.S.C. § 261 (2012); *Mabbett v. Tandy Corp.*, 847 F.2d 841, 1988 WL 30045, at *2 n.2 (Fed. Cir. 1988) (“Legal title to a patent may pass despite a failure to record.”).

³⁸² 37 C.F.R. § 1.12 (2016). Although available for inspection, the documents require the payment of a fee. In contrast, the data available in the online database are available free of charge.

³⁸³ *Assignment Search*, U.S. PATENT & TRADEMARK OFFICE, <http://assignment.uspto.gov/#/>.

³⁸⁴ See 37 C.F.R. § 3.31 (2016).

owning 10% or more of its stock.” Several jurisdictions have local rules that modify the language of Rule 7.1. The Northern District of California, for example, requires that parties “list all persons, associations of persons, firms, partnerships, and corporations ... that may have a pecuniary interest in the outcome of the case.”³⁸⁵ When necessary, the FTC obtained these disclosures, which would sometimes identify related firms.

In some instances, identified firms also provided relevant information in connection with motion practice. On occasion, a plaintiff would provide a declaration with information regarding the acquisition and assignment of an asserted patent in opposition to a motion to dismiss for lack of standing due to a defective assignment. In other cases, parties would submit information regarding the scope and extent of a firm’s activities in conjunction with a motion to transfer venue. In addition, in the small handful of cases that proceeded to trial and the firm’s owner testified, that testimony offered a clear description of the history and activities of the firm. Finally, some identified firms were involved in unrelated litigation—such as fee disputes with their attorneys—that shed light on their activities.

The FTC also performed an extensive search of corporate records with state departments of state. The information provided by each state varied considerably.³⁸⁶ Texas, for example, provided the principal place of business, names and addresses of each officer and member, the identity of the registered agent, and the identity of parent and subsidiary firms for each identified firm established in the state. Delaware, in contrast, would provide only the name and address of a registered agent. In some states, these databases were searchable and the FTC was able to identify additional firms by searching for the names of owners or officers.³⁸⁷

The FTC conducted an extensive analysis of the material that it obtained from public sources. In some cases, this material would explicitly identify a parent firm and lead to the identification of other related firms. In other cases, the material pointed to a pattern of interactions that suggested common direction, but could not establish common ownership under one parent firm. For example, some entities acquired

³⁸⁵ N.D. CAL. CIV. L.R. 7.1-1.

³⁸⁶ There was often a fee associated with obtaining these records.

³⁸⁷ The FTC observed that the different LLCs of the same PAE often had the same manager who would sign state filings on their behalf.

patents through one firm and then reassigned those patents to other firms that would litigate. In this case, the FTC could identify related firms through assignment records. The FTC also observed the practice of a group of individuals holding personal ownership interests or serving as officers of a group of related entities. In this case, the FTC searched secretary of state records, where available. In addition, in some cases, there was evidence that suggested a relationship but did not establish one.³⁸⁸ For example, the same attorney recorded several patent assignments over a short period to seemingly unrelated firms that shared the same address. From this, the FTC inferred a relationship that it then examined further using other sources of information.³⁸⁹

The FTC had varying levels of success in identifying the party directing the activities of each firm under study. In many cases, the FTC successfully identified and served one party that was effectively exercising control over the identified firm's activities. In several cases, the FTC served multiple entities that were part of the same firm separately because the publicly available information could not establish that any one firm exercised control over the entire scope of operations. There also were instances where related firms did not have a parent firm but rather shared owners or managers; in some cases, the FTC served the individuals with the information request in their personal capacity. Finally, in some cases, the FTC could not discern any parent company and served information requests only on the firm identified in commercial data; in some instances, the nonpublic information provided in response to the requests identified an unknown parent company whereas in others it did not.

The FTC was able to identify a party to answer on behalf of each identified firm, although doing so required significant effort. Based upon this research, the FTC has observed that some Responding PAEs took steps that made it nearly impossible to discern their ownership from publicly available data. Some firms did not identify controlling firms in their Rule 7.1 declarations.³⁹⁰ Other firms utilized exclusive licenses instead of recorded assignments in the Patent Office. Finally, firms that used LLCs organized in

³⁸⁸ The FTC observed that the use of the same mailing address and registered agent for different LLCs was commonplace.

³⁸⁹ In some cases, the bulk download and analysis of assignment or litigation data facilitated identifying relationships that were otherwise difficult to discern.

³⁹⁰ Rule 7.1 requires disclosure of "any parent corporation and any publicly held corporation owning 10% or more of its stock," which would not cover all of the ownership arrangements encountered in the study. FED. R. CIV. P. 7.1.

Delaware avoided disclosing any information regarding their ownership in their state filings. Even when firms did not take these steps, the effort involved in identifying the controlling entity was substantial.

Methods to Validate Study Responses

Response by recipients of the information requests, pursuant to FTC Act Section 6(b), 15 U.S.C. § 46(b), is mandatory.³⁹¹ Respondents must certify, that the responses are, to the best of their knowledge, “true, correct, and complete.”

The FTC, however, did not rely only on the mandatory nature of production to validate study responses. In designing the information requests, it asked for overlapping information through written responses and document production. By collecting information through multiple sources, FTC attorneys and economists were able to crosscheck and confirm information received, and clarify responses that appeared inconsistent.

FTC staff also communicated directly with respondents before and after production. In pre-production calls, staff confirmed and/or clarified information sought in response to specific requests. For example, because the FTC sent identical survey instruments to multiple respondents, staff often discussed how certain questions would apply to a particular respondent’s method of maintaining survey information. As a general rule, staff indicated that respondents should produce information as maintained, but should not estimate or create data to respond to certain questions. This instruction applied particularly where respondents did not maintain forecasts of future revenues. FTC staff did not ask respondents to create forecasts specifically to respond to information requests. FTC staff met with respondents and their counsel, by telephone and in person, often several times per respondent.

³⁹¹ The recipient of a 6(b) order may file a petition to limit or quash, and the FTC may seek a federal court order requiring compliance. In addition, the FTC may commence suit in federal court under Section 10 of the FTC Act, 15 U.S.C. § 50 (2012), against any party that fails to comply with a Section 6(b) order after receiving a notice of default from the FTC.

Appendix C: PAE SPECIAL ORDER

SPECIFICATIONS

A. Identification of Report Author: Identify by full name, title, business address, telephone number, email address, and official capacity the Person(s) who prepared or supervised the preparation of the Firm's response to the Information Requests.

B. Firm Information

1. State the Firm's complete legal name and all other names under which it has done business since January 1, 2009, its corporate mailing address, all addresses and websites from which it does or has done business since January 1, 2009, and the date(s) and state(s) of its incorporation.
2. Describe the Firm's business and corporate structure; provide an organizational chart stating the names of all parents, wholly or partially owned subsidiaries, incorporated or unincorporated divisions, affiliates, branches, joint ventures, franchises, operations under assumed names, websites, or other Person(s) over which the Firm exercises or has exercised supervision or control since January 1, 2009. When responding to these Information Requests, separately provide all information for the Firm and each related Person(s) identified in response to Request B2.
3. Has more than one Person identified in response to Request B2 engaged in Assertions against the same Person? (Y/N) If yes, name the Person(s) identified in response to Request B2 that made the Assertions, name the Person subject to the Assertions, state the date of each Assertion; and identify the Patent(s) related to each Assertion.
4. Identify each Person(s) with a contractual or other legal right or obligation to a share of revenues, profits, costs or other Economic Interest in the Firm. For each such Person, describe the Person's relationship with the Firm, including their percentage of ownership, control, or other legal entitlement to a share of revenues, profits or financial performance of the Firm and, if relevant, their positions and responsibilities within the Firm.

C. Patent Information

1. For each Patent Held by the Firm since January 1, 2009
 - a. State the Person within the Firm who Holds the Patent, *e.g.* if the Patent is Held by a Firm subsidiary, state the subsidiary.
 - b. State the Patent number.
 - c. State the Patent's priority date.
 - d. State the application to which the Patent claims earliest priority.
 - e. Does the Patent expire either 17 years from the date of issuance, if the Patent was filed before June 7, 1995, or 20 years from the priority date, if the Patent was filed after June 7, 1995? (Y/N) If no:
 - (1) state the Patent's expiration date; and

- (2) produce, and provide a narrative response that identifies by Reference Number, Documents sufficient to demonstrate the Patent's expiration date.
- f. Has the Patent been subject to review by the Patent and Trademark Office since January 1, 2009? (Y/N) If yes:
 - (1) provide the docket number for each review.
- g. Do(es) any Person(s) outside the Firm Hold any Legal Rights to the Patent? (Y/N) If yes:
 - (1) identify the Person(s) who Hold(s) any Legal Rights to the Patent;
 - (2) for each Person identified above, provide a narrative response that identifies and describes the Legal Rights Held; and
 - (3) produce, and provide a narrative response that identifies by Reference Number, all agreements relating to the Legal Rights Held.
- h. Do(es) any Person(s) outside the Firm Hold an Economic Interest in the Patent? (Y/N) If yes:
 - (1) identify the Person(s) who Hold(s) any Economic Interest in the Patent;
 - (2) for each Person identified above, provide a narrative response that identifies and describes the Economic Interest Held; and
 - (3) produce, and provide a narrative response that identifies by Reference Number, all agreements relating to the Economic Interest Held.
- i. Does the Firm have an exclusive License to the Patent? (Y/N) If yes:
 - (1) produce, and provide a narrative response that identifies by Reference Number, the agreement(s) providing the exclusive License;
 - (2) produce, and provide a narrative response that identifies by Reference Number, all Reports that evaluate or analyze the Firm's reasons for entering into the exclusive License;
 - (3) if the exclusive License is limited by geography, list the geographic restrictions; and
 - (4) if the exclusive License is limited by field of use:
 - (a) state the specific field of use restriction; and
 - (b) identify, from the following list, in which sector(s) is the field of use restriction: Chemical, Computers & Communications, Drugs & Medical, Semiconductors, Other Electrical & Electronic, Mechanical, or Other.
- j. Has the Firm Asserted the Patent? (Y/N) If yes:
 - (1) state whether the patent is a Wireless Patent; and

- (2) identify, from the following list, in which sector(s) the Patent was Asserted: Chemical, Computers & Communications, Drugs & Medical, Semiconductors, Other Electrical & Electronic, Mechanical, or Other.
- k. Has the Firm included the Patent in any Demand? (Y/N)
- l. Has the Firm brought Litigation involving the Patent? (Y/N)
- m. Has the Firm Licensed the Patent to any Person(s)? (Y/N)
- n. Has the Firm, or any other Person, assigned a value to the Patent? (Y/N) If yes:
 - (1) state the date of the most recent valuation;
 - (2) state the amount of the most recent valuation;
 - (3) provide a narrative response identifying, by date and amount, all prior valuations by, or on behalf of, the Firm; and
 - (4) produce, and provide a narrative response that identifies by Reference Number, all related Reports.
- o. State the number of known Assignments of the Patent before the Patent was Acquired by the Firm. As part of your response do not include the assignment of Legal Rights to a Patent by a Firm employee who is bound to assign Legal Rights to the Firm at the time of invention.
- p. Provide a narrative response identifying all Person(s) to whom the Patent was assigned before the Firm Acquired the Patent and the date(s) of each assignment.
- q. State whether the Patent was Asserted in Litigation before the Firm Acquired the Patent. (Y/N) If yes:
 - (1) state the number of times the Patent was Asserted in Litigation before the Firm Acquired the Patent;
 - (2) produce, and provide a narrative response that identifies by Reference Number, all agreements relating to the Litigation, including License, settlement, and non-disclosure agreements; and
 - (3) for each Litigation provide a narrative response:
 - (a) identifying the Person(s) who Asserted the Patent;
 - (b) identifying the jurisdiction and docket number of each Litigation;
 - (c) identifying all claims that were found infringed, valid, and enforceable;
 - (d) stating whether an injunction or exclusion order issued; and
 - (e) stating the amount of any damages awarded.

2. To the extent not otherwise identified in response to the Information Requests, if the Firm has entered into any agreement since January 1, 2009 relating to any Economic Interest or Legal Right to any Patent Held by the Firm, for each agreement
 - a. Submit the agreement, and provide a narrative response that identifies it by Reference Number; and
 - b. Submit all Reports that evaluate or analyze the reasons for entering into the agreement, and provide a narrative response that identifies the Reference Number(s) of the Reports.

D. Standard Setting Commitments

1. If any Person has committed to a Standard Setting Organization that it will License any Patent(s) Held by the Firm since January 1, 2009, for each commitment
 - a. State the date the commitment was made.
 - b. Identify the Person who made the commitment.
 - c. Identify the Standard Setting Organization.
 - d. Identify the standard(s) to which the commitment applies.
 - e. Provide a narrative response identifying any Wireless Patents held by the Firm that are subject to the commitment.
 - f. State whether the commitment is to License the Patent(s) or any Patent claim(s) on reasonable and non-discriminatory (RAND); fair, reasonable, and non-discriminatory (FRAND); royalty-free (RF); or other terms.
 - (1) if the commitment is to License on terms other than RAND, FRAND, or RF, provide a narrative response describing the terms.
 - g. Is the commitment subject to a field of use restriction? (Y/N) If yes:
 - (1) state the specific field of use restriction(s); and
 - (2) identify, from the following list, in which sector(s) is the field of use restriction: Chemical, Computers & Communications, Drugs & Medical, Semiconductors, Other Electrical & Electronic, Mechanical, or Other.
 - h. Provide a narrative response listing all Patent(s) that any Person has declared, or otherwise identified to any Person, as subject to the commitment.
 - i. Produce, and provide a narrative response identifying by Reference Number, all agreements embodying the commitment.

E. Patent Portfolio Information

1. For each Patent Portfolio Held by the Firm since January 1, 2009
 - a. Has the Firm organized the Portfolio by field of use? (Y/N) If yes:
 - (1) state the specific field of use; and

- (2) identify, from the following list, in which sector(s) is the field of use:
Chemical, Computers & Communications, Drugs & Medical,
Semiconductors, Other Electrical & Electronic, Mechanical, or Other.
- b. Does the Firm identify the Patent(s) included in the Patent Portfolio? (Y/N) If yes:
 - (1) provide a narrative response stating the numbers of the Patents included in the Patent Portfolio.
- c. Has the Firm assigned a value to the Patent Portfolio? (Y/N) If yes:
 - (1) state the date of the most recent valuation;
 - (2) state the amount of the most recent valuation;
 - (3) provide a narrative response identifying, by date and amount, all prior valuations by, or on behalf of, the Firm; and
 - (4) produce, and provide a narrative response identifying by Reference Number, all related Reports.
- d. Produce, and provide a narrative response identifying by Reference Number, all Reports that evaluate how the Firm organizes and names the Portfolio and the Firm's reasons or business strategy for organizing the Patent Portfolio and for allocating specific Patent(s) into any identified Patent Portfolio.
- e. To the extent not identified above, provide a narrative response describing how the Firm organizes and names the Portfolio.

F. Patent Acquisition Information

- 1. For each transaction in which the Firm Acquired Patent(s) since January 1, 2009
 - a. State the date of the transaction.
 - b. State the Person who Acquired the Patent(s).
 - c. State the Person(s) from whom the Patent(s) were Acquired.
 - (1) did the Firm Acquire the Patent(s) from a named inventor of the Patent? (Y/N)
 - (2) did the Firm Acquire the Patent(s) from an employer of the named inventor? (Y/N)
 - (3) did the Firm Acquire the Patent from a Person that the Firm identifies as a Patent Assertion Entity? (Y/N)
 - d. State the total number of Patents Acquired in this transaction.
 - e. Did the Firm Acquire any Wireless Patent(s) in this transaction? (Y/N)
 - f. For each Patent Acquired in the transaction:
 - (1) state the Patent Number.
 - (2) did the Firm assign the Patent in connection with this transaction? (Y/N) If yes:

- (a) was the assignment recorded with the United States Patent and Trademark Office? (Y/N)
 - (3) did the Firm obtain an exclusive License to the Patent in connection with the transaction? (Y/N)
 - (4) did the Firm License the Patent back to its previous owner? (Y/N)
- g. Did the Firm assume existing License obligations for the Patent(s)? (Y/N) If yes:
 - (1) state the total number of License obligations assumed;
 - (2) state the total revenue obtained by the Firm as a result of assuming existing License obligations to the date of this request; and
 - (3) state the total revenue expected to be obtained by the Firm in the future as a result of assuming existing License obligations.
- h. Did the Firm Acquire the Patent(s) in connection with any proceeding before a United States Bankruptcy Court? (Y/N) If yes:
 - (1) state the jurisdiction; and
 - (2) state the docket number.
- i. For each Person receiving payment as a result of this transaction:
 - (1) state the Person to whom the payment was made.
 - (a) was the Person a named inventor of a Patent included in the transaction? (Y/N)
 - (b) was the Person an employer of a named inventor of a Patent included in the transaction? (Y/N)
 - (c) was the Patent(s) Acquired from the Person? (Y/N)
 - (2) did the Firm make a lump-sum payment(s), *i.e.* a payment not directly affected by the Firm's future revenue or unit sales, to this Person to Acquire the Patents? (Y/N) If yes:
 - (a) state the total amount of the lump-sum payment(s) made;
 - (b) state the total amount of the lump-sum payment(s) expected to be made in the future;
 - (c) if any agreement defines the lump-sum payment terms, produce, and provide a narrative response identifying by Reference Number, the agreement; and
 - (d) provide a narrative response describing the method for calculating the payment.
 - (3) did the Firm pay, or is the Firm expecting to pay, an on-going payment, *i.e.*, a payment that is directly affected by either the Firm's future revenue or unit sales, to this Person to Acquire the Patent(s)? (Y/N) If yes:

- (a) state the total amount paid in on-going payments, by calendar year, to the date of this Request;
 - (b) state the total amount from on-going payments expected to be made in the future derived from the Patents Acquired;
 - (c) if any agreement defines the payment terms, produce, and provide a narrative response identifying by Reference Number, the agreement; and
 - (d) provide a narrative response describing the method for calculating the past and future ongoing payment(s).
- j. Does the Acquisition involve a cross-License? (Y/N) If yes:
 - (1) state the date of the cross-License agreement.
 - (2) has the Firm assigned a value to the cross-License? (Y/N) If yes:
 - (a) state the date of the most recent valuation;
 - (b) state the amount of the most recent valuation;
 - (c) provide a narrative response identifying , by date and amount, all prior valuations by, or on behalf of, the Firm; and
 - (d) produce, and provide a narrative response identifying by Reference Number, all related Reports.
 - (3) produce, and provide a narrative response identifying by Reference Number, the cross-License; and
 - (4) produce, and provide a narrative response identifying by Reference Number, all related Reports.
- k. Did any Person outside the Firm financially contribute to the Acquisition? (Y/N) If yes:
 - (1) state the Person(s) who contributed to the Acquisition;
 - (2) state the total amount contributed by other Person(s) to the Acquisition;
 - (3) state the total amount expected to be contributed by other Person(s) in the future as a result of the Acquisition;
 - (4) produce, and provide a narrative response identifying by Reference Number, all related agreements;
 - (5) produce, and provide a narrative response identifying by Reference Number, all related Reports; and
 - (6) for each Person identified, provide a narrative response stating each Person's financial contribution, the method for calculating this amount, and each Person's Legal Right to the Patent(s).

1. Do(es) any Person(s) outside the Firm Hold any Legal Rights to any of the Patents Acquired in this transaction? (Y/N) If yes:
 - (1) state the Person(s) who Holds any Legal Rights to any Acquired Patents;
 - (2) produce, and provide a narrative response identifying by Reference Number, all related agreements;
 - (3) produce, and provide a narrative response identifying by Reference Number, all related Reports; and
 - (4) for each Person identified, provide a narrative response identifying each Person's Legal Rights, and the Patent(s) to which the Person Holds each Legal Right.
- m. Produce, and provide a narrative response identifying by Reference Number, all Reports related to the Acquisition.
- n. Produce, and provide a narrative response identifying by Reference Number, all agreements related to the Acquisition.
2. To the extent not identified in these Information Requests, produce, and provide a narrative response identifying by Reference Number, all agreements between the Firm and any Person executed since January 1, 2009 relating to any Acquisition by the Firm of any Legal Right to a Patent
 - a. for any such agreement produced, also produce, and provide a narrative response identifying by Reference Number, all Reports that (i) evaluate or analyze the reasons for entering into the agreement or (ii) evaluate or analyze the calculation of any payment relating to the Acquisition.

G. Patent Transfer Information

1. For each transaction in which the Firm Transferred Patent(s) since January 1, 2009
 - a. State the date of the transaction.
 - b. State the Person(s) who Transferred the Patent(s).
 - c. State the Person(s) to whom the Patent(s) were Transferred.
 - (1) did the Firm Transfer the Patent(s) to a Person that the Firm identifies as a Patent Assertion Entity? (Y/N)
 - d. State the total number of Patent(s) Transferred in the transaction.
 - e. Did the Firm transfer any Wireless Patent(s) in this transaction? (Y/N)
 - f. For each Patent Transferred in the transaction:
 - (1) state the Patent number.
 - (2) did the Firm assign the Patent in connection with the transaction? (Y/N) If yes:
 - (a) was the assignment recorded with the United States Patent and Trademark Office? (Y/N)

- (3) did the Firm grant an exclusive License to the Patent(s) in connection with the transaction? (Y/N)
- g. Did the Firm transfer existing License obligations to the Patent(s)? (Y/N) If yes:
 - (1) state the total number of License obligations transferred; and
 - (2) state the total revenue received by the Firm from these Licenses.
- h. Did the Firm Transfer the Patent(s) in connection with any proceeding before a United States Bankruptcy Court? (Y/N) If yes:
 - (1) state the jurisdiction; and
 - (2) state the docket number.
- i. Was the Firm paid a lump-sum payment(s), *i.e.* a payment not directly affected by the transferee's future revenue or unit sales, to Transfer the Patent(s)? (Y/N) If yes, for each Person making payments to the Firm:
 - (1) state the Person from whom the payment(s) was received;
 - (2) state the total amount of the lump-sum payment(s) received;
 - (3) state the total amount of the lump-sum payment(s) expected to be received in the future;
 - (4) if any agreement(s) define(s) the payment terms, produce, and provide a narrative response identifying by Reference Number, the agreement(s); and
 - (5) provide a narrative response describing the method for calculating the payment(s).
- j. Did the Firm receive, or is it receiving, an on-going payment, *i.e.*, a payment that is directly affected by either the transferee's future revenue or unit sales, from the Person(s) receiving the Patent(s)? (Y/N) If yes, for each Person making payments to the Firm:
 - (1) state the Person(s) from whom the payment(s) are received;
 - (2) state the total amount of the on-going payments received from this Person(s), by calendar year, made to the date of this Request;
 - (3) state the total amount of on-going payments expected to be received in the future;
 - (4) if any agreement(s) define(s) the payment terms, produce, and provide a narrative response identifying by Reference Number, the agreement(s); and
 - (5) provide a narrative response describing the method for calculating the on-going payment(s).
- k. Does the Transfer involve a cross-License? (Y/N) If yes:
 - (1) state the date of the cross-License agreement;

- (2) has the Firm assigned a value to the cross-License? (Y/N) If yes:
 - (a) state the date of the most recent valuation;
 - (b) state the amount of the most recent valuation;
 - (c) provide a narrative response identifying, by date and amount,, all prior valuations by, or on behalf of, the Firm; and
 - (d) produce, and provide a narrative response identifying by Reference Number, all related Reports.
 - (3) produce, and provide a narrative response identifying by Reference Number, the cross-License; and
 - (4) produce, and provide a narrative response identifying by Reference Number, all related Reports.
1. Did any Person outside the Firm share in the proceeds from the Transfer? (Y/N) If yes:
 - (1) state the Person(s) who shared in the proceeds from the Transfer;
 - (2) state the total amount shared with other Person(s) to the date of this Request;
 - (3) state the total amount expected to be shared with other Person(s) in the future;
 - (4) produce, and provide a narrative response identifying by Reference Number, all related agreements;
 - (5) produce, and provide a narrative response identifying by Reference Number, all related Reports; and
 - (6) for each Person identified, provide a narrative response stating the amount shared with each Person, the amount expected to be shared in the future, and the method for calculating this amount.
- m. Produce, and provide a narrative response identifying by Reference Number, all Reports related to the Transfer.
- n. Produce, and provide a narrative response identifying by Reference Number, all agreements related to the Transfer.
2. To the extent not identified in these Information Requests, produce, and provide a narrative response identifying by Reference Number, all agreements between the Firm and any Person executed since January 1, 2009 relating to any Transfer by the Firm of any Legal Right to a Patent
 - a. For any such agreement produced, also produce, and provide a narrative response identifying by Reference Number, all Reports that (i) evaluate or analyze the reasons for entering into the agreement or (ii) evaluate or analyze the calculation of any payment relating to the Acquisition.

H. Patent Assertion Information

1. Demand Information: For each Demand made by, or on behalf of, the Firm since January 1, 2009
 - a. State the date of the Demand.
 - b. State the Person(s) who made the Demand, *e.g.* the Firm or one of its related Person(s).
 - c. State the Person(s) to whom the Demand was made.
 - d. State the Patent(s) that formed the basis of the Demand.
 - e. Did the Demand relate to a Wireless Patent? (Y/N)
 - f. Identify, from the following list, in which sector(s) the Demand was made: Chemical, Computers & Communications, Drugs & Medical, Semiconductors, Other Electrical & Electronic, Mechanical, or Other.
 - g. Was the Demand limited to geographic area(s)? (Y/N) If yes:
 - (1) identify the geographic area(s).
 - h. State all accused product(s) relating to the Demand.
 - i. Produce, and provide a narrative response identifying by Reference Number, a copy of each Demand Document and all appendices, including, but not limited to, claim charts, and all Reports related to the Demand.
2. Litigation Information: For each Litigation commenced since January 1, 2009 relating to a Patent Held by the Firm, or a Patent in which the Firm has an Economic Interest, separately for each Person (collectively including its parents, subsidiaries, and affiliates) named as a defendant (if the Firm is a plaintiff) or as a declaratory judgment plaintiff (if the Firm is a defendant)
 - a. State the jurisdiction in which the Litigation was commenced.
 - b. State the docket number of the Litigation.
 - c. State the date the Litigation was commenced.
 - d. State all plaintiffs named or otherwise joined in the Litigation.
 - e. State the defendant (including parents, subsidiaries, and affiliates) named or otherwise joined in the Litigation.
 - f. State all Patents Asserted.
 - g. Was any Patent Asserted a Wireless Patent? (Y/N)
 - h. Identify, from the following list, in which sector(s) the Patents were asserted: Chemical, Computers & Communications, Drugs & Medical, Semiconductors, Other Electrical & Electronic, Mechanical, or Other.
 - i. Produce, and provide a narrative response identifying by Reference Number, all orders relating to all dispositive motions.

- j. Produce, and provide a narrative response identifying by Reference Number, all expert reports exchanged during Litigation that offer an opinion related to the valuation of the Patent(s) or damages relating to the Litigation.
- k. Is the Litigation pending? (Y/N) If no:
 - (1) state the date of termination.
 - (2) state whether the Litigation terminated upon successful dispositive motion, jury verdict, judgment following trial on the merits, appeal, settlement, or other (if other, explain).
 - (3) provide a narrative response identifying all Patent claims found infringed, valid, and enforceable.
 - (4) did a permanent injunction, exclusion order, or cease and desist order issue? (Y/N)
 - (5) did the court award damages? (Y/N) If yes:
 - (a) state the amount awarded; and
 - (b) state the amount actually paid to the prevailing party.
 - (6) did the court award fees pursuant to 35 U.S.C. 285? (Y/N) If yes:
 - (a) state the fees awarded; and
 - (b) state the amount actually paid to the prevailing party.
 - (7) did the court issue sanctions pursuant to Rule 11 of the Federal Rules of Civil Procedure? (Y/N)
 - (8) did the Litigation terminate upon exhaustion of appellate process? (Y/N)
- l. Did the Litigation settle? (Y/N) If yes:
 - (1) did the settlement result in a License agreement? (Y/N) If yes:
 - (a) state the date of the License agreement;
 - (b) state the Licensee; and
 - (c) state the Licensor.
 - (2) when was settlement reached: after the complaint was filed; after a successful dispositive motion, after a jury verdict, after judgment following trial on the merits, after appeal, or other (if other, explain)?
 - (3) did the Court issue an order construing any claim(s) of the Patent(s) Asserted before settlement was reached? (Y/N) If yes:
 - (a) produce, and provide a narrative response identifying by Reference Number, the order.
 - (4) state the total revenue the Firm has received under the terms of the settlement agreement from January 1, 2009 to the date of this Request.

Do not report revenue reported for any License identified in response to H.3 below.

- (a) was any part of this revenue received as a lump-sum payment, *i.e.* a payment not directly affected by the defendant's future revenue or unit sales? (Y/N) If yes:
 - (1) state the total revenue the Firm has received to the date of this request in lump-sum payments; and
 - (2) state the total revenue the Firm expects to receive in the future in lump-sum payments.
- (b) was any part of this revenue received as an on-going payment, *i.e.*, a payment that is directly affected by either the defendant's future revenue or unit sales? (Y/N) If yes:
 - (1) state the total revenue the Firm has received to the date of this request in on-going payments; and
 - (2) state the total revenue the Firm expects to receive in the future as on-going payments.
- (c) is this revenue shared with anyone outside the Firm? (Y/N) If yes:
 - (1) state the total amount shared outside the Firm.
 - (2) if the revenue is part of an ongoing payment, state the total amount the Firm expects to share in the future.
 - (3) is any revenue shared pursuant to a contingency fee or risk-sharing agreement? (Y/N) If yes:
 - (A) state the total amount shared pursuant to a contingency fee or risk-sharing agreement;
 - (B) state the Person(s) outside the Firm who is party to the agreement; and
 - (C) provide a narrative response stating the amount the Firm shared with each Person, the amount the Firm expects to share in the future, and describing the method for calculating this amount.
 - (4) state all Person(s) with whom this revenue is shared.
 - (A) are any of these Person(s) the named inventor of any Patent Asserted in the Litigation? (Y/N)

- (B) are any of these Person(s) the employer of the named inventor of any Patent Asserted in the Litigation? (Y/N)
 - (5) produce, and provide a narrative response identifying by Reference Number, all revenue sharing agreements.
 - (6) provide a narrative response stating the amount shared with each Person and describing the method for calculating this amount.
 - m. State the Firm's total expenses relating to the Litigation from January 1, 2009 to the date of this Request.
 - (1) are these expenses shared with any Person(s) outside the Firm? (Y/N)
 - If yes:
 - (a) state the total amount of expenses shared outside the Firm;
 - (b) identify all Person(s) with whom expenses are shared;
 - (c) produce, and provide a narrative response identifying by Reference Number, all expense sharing agreements;
 - (d) produce, and provide a narrative response identifying by Reference Number, all Reports related to all expense sharing agreements; and
 - (e) provide a narrative response stating the amount shared with each Person and describing the method for calculating this amount.
 - n. State all projected revenues relating to the Litigation from the date of this Request.
 - (1) provide a narrative response describing the method for calculating the projected revenue, *e.g.* as a fraction of revenue or a fee per unit sold.
 - o. To the extent not identified above, produce, and provide a narrative response identifying by Reference Number, all agreements related to the Litigation and produce, and provide a narrative response identifying by Reference Number, all Reports related to the Litigation.
3. License Information: For each License executed since January 1, 2009 relating to a Patent Held by the Firm or a Patent in which the Firm has an Economic Interest
- a. Who is the Licensor(s)?
 - b. Who is the Licensee(s)?
 - c. Identify all Patent(s) Licensed.
 - d. What is the effective date of the License agreement?
 - e. Does the License relate to a Patent Held by the Firm? (Y/N)

- f. Does the License relate to a Wireless Patent Held by the Firm? (Y/N)
- g. Does the License relate to a Patent in which the Firm has an Economic Interest? (Y/N)
- h. Does the License relate to a Wireless Patent in which the Firm has an Economic Interest? (Y/N)
- i. For each Litigation related to the License:
 - (1) state the jurisdiction in which the Litigation was commenced.
 - (2) state the docket number of the Litigation.
- j. Does the License contain a field of use restriction? (Y/N) If yes:
 - (1) state the specific field of use restriction ; and
 - (2) identify, from the following list, in which sector(s) is the field of use restriction: Chemical, Computers & Communications, Drugs & Medical, Semiconductors, Other Electrical & Electronic, Mechanical, or Other.
- k. Does the License contain a geographic restriction? (Y/N) If yes:
 - (1) identify the geographic restriction(s).
- l. State the duration of the License agreement?
- m. State the Licensed products or services.
- n. Does the License include any cross-License? (Y/N) If yes:
 - (1) has the Firm assigned a value to the cross-License? (Y/N) If yes:
 - (a) state the date of the most recent valuation; and
 - (b) state the amount of the most recent valuation; and
 - (c) provide a narrative response identifying by date and amount all prior valuations by, or on behalf of, the Firm; and
 - (d) produce, and provide a narrative response identifying by Reference Number, all related Reports.
 - (2) produce, and provide a narrative response identifying by Reference Number, the cross-License.
 - (3) provide a narrative response identifying the number of Patents cross-Licensed, as well as whether the cross-License is exclusive, whether there are any geographic limitations to the cross-License, whether there are any field of use limitations to the cross-License, and whether the field of use restriction is in the following sectors: Chemical, Computers & Communications, Drugs & Medical, Semiconductors, Other Electrical & Electronic, Mechanical, or Other.

- o. State the total revenue the Firm has received under the terms of the License from January 1, 2009 to the date of this Request.
 - (1) was any part of this revenue received as a lump-sum payment, *i.e.* a payment not directly affected by the defendant's future revenue or unit sales? (Y/N) If yes:
 - (a) state the total revenue the Firm has received to the date of this request in lump-sum payments.
 - (2) was any part of this revenue received as an on-going payment, *i.e.*, a payment that is directly affected by either the defendant's future revenue or unit sales? (Y/N) If yes:
 - (a) state the total revenue the Firm has received to the date of this request in on-going payments.
 - (3) is this revenue shared with anyone outside the Firm? (Y/N) If yes:
 - (a) state the total amount shared outside the Firm.
 - (b) if the revenue is part of an ongoing payment, state the total amount the Firm expects to share in the future.
 - (c) state all Person(s) with whom this revenue is shared.
 - (1) are any of these Person(s) the named inventor of any of the Licensed Patents? (Y/N)
 - (2) are any of these Person(s) the employer of the named inventor of any of the Licensed Patents? (Y/N)
 - (d) produce, and provide a narrative response identifying by Reference Number, all revenue sharing agreements.
 - (e) provide a narrative response stating the amount the Firm shared with each Person and the amount the Firm expects to share in the future and describing the method for calculating this amount.
- p. State the Firm's total expenses relating to the License agreement from January 1, 2009 to the date of this Request.
 - (1) are these expenses shared with any Person(s) outside the Firm? (Y/N) If yes:
 - (a) state the total amount of expenses shared outside the Firm;
 - (b) identify all Person(s) with whom expenses are shared;
 - (c) produce, and provide a narrative response identifying by Reference Number, all expense sharing agreements;
 - (d) produce, and provide a narrative response identifying by Reference Number, all Reports related to all expense sharing agreements; and

- (e) provide a narrative response stating the amount of expenses shared with each Person and describing the method for calculating this amount.
- q. State all projected revenues relating to the License from the date of this Request.
 - (1) provide a narrative response describing the method for calculating the projected revenue, *e.g.* as a fraction of revenue or a fee per unit sold.
- r. Produce, and provide a narrative response identifying by Reference Number, all Reports related to the License.
- s. Produce, and provide a narrative response identifying by Reference Number, all agreements related to the License.
- 4. To the extent not identified above, produce, and provide a narrative response identifying by Reference Number, all agreements related to any Assertion relating to a Patent Held by the Firm, or a Patent in which the Firm has an Economic Interest and produce, and provide a narrative response identifying by Reference Number, all related Reports

I. Aggregate Cost Information

- 1. Separately, for each year since January 1, 2009
 - a. State the total cost to the Firm relating to all Acquisitions identified in response to Request F.
 - (1) did the Firm share Acquisition costs with Person(s) outside the Firm? (Y/N) If yes:
 - (a) state all Person(s) with whom these costs are shared;
 - (b) state the total amount paid by Person(s) outside the Firm; and
 - (c) state the total amount paid by the Firm.
 - b. State the total cost to the Firm relating to all Litigations identified in response to Request H.2.
 - (1) did the Firm share Litigation costs with Person(s) outside the Firm? (Y/N) If yes:
 - (a) state all Person(s) with whom these costs are shared;
 - (b) state the total amount paid by Person(s) outside the Firm; and
 - (c) state the total amount paid by the Firm.
 - c. State the total cost to the Firm relating to all Licenses identified in response to Request H.3.
 - (1) did the Firm share License costs with Person(s) outside the Firm? (Y/N) If yes:

- (a) state all Person(s) with whom these costs are shared;
 - (b) state the total amount paid by Person(s) outside the Firm;
and
 - (c) state the total amount paid by the Firm.
- 2. For all forecasted costs expected to be paid after the date of this Request
 - a. State the total cost expected to be paid by the Firm relating to all Acquisitions identified in Request F.
 - b. State the total cost expected to be paid by all other Person(s) outside the Firm relating to all Acquisitions identified in Request F.
 - c. State the total cost expected to be paid by the Firm relating to all Litigations identified in Request H.2.
 - d. State the total cost expected to be paid by all other Person(s) outside the Firm relating to all Litigations identified in Request H.2.
 - e. State the total cost expected to be paid by the Firm relating to all License Agreements identified in Request H.3.
 - f. State the total cost expected to be paid by all other Person(s) outside with the Firm relating to all License Agreements identified in Request H.3.
 - g. Produce, and provide a narrative response identifying by Reference Number, all Reports related to all forecasted costs identified in response to this Request.
- 3. Since January 1, 2009, has the Firm engaged in any research and development related to the Patents identified in Request C? (Y/N) If yes:
 - a. What is the total cost of the Firms' research and development activity?
 - b. Produce, and provide a narrative response identifying by Reference Number, Documents sufficient to show the total cost of the Firms' research and development activity.
- 4. Produce, and provide a narrative response identifying by Reference Number, Documents sufficient to show all costs and payments identified in response to Request I
- 5. Has the Firm made any payment related to the Acquisition of any Patent by any Person not otherwise identified in response to these Requests? (Y/N) If yes:
 - a. State the Person(s) to whom the payments were made;
 - b. State the total amount paid;
 - c. State the total amount expected to be paid in the future; and
 - d. For each Person who received payments from the Firm, provide a narrative response identifying the amount paid, identifying the amount expected to be paid in the future, and describing the Acquisition.

J. Aggregate Revenue Information

1. Separately, for each year since January 1, 2009
 - a. State the total revenue received by the Firm relating to all Transfers identified in response to Request G.
 - (1) did the Firm share Transfer revenue with Person(s) outside the Firm? (Y/N) If yes:
 - (a) state all Person(s) with whom this revenue is shared;
 - (b) state the amount of revenue shared with Person(s) outside the Firm; and
 - (c) state the amount retained by the Firm.
 - b. State the total revenue received by the Firm relating to all Litigations identified in response to Request H.2.
 - (1) did the Firm share Litigation revenue with Person(s) outside the Firm? (Y/N) If yes:
 - (a) state all Person(s) with whom this revenue is shared;
 - (b) state the total revenue shared with Person(s) outside the Firm; and
 - (c) state the amount retained by the Firm.
 - c. State the total revenue received by the Firm relating to all Licenses identified in response to Request H.3.
 - (1) did the Firm share License revenue with Person(s) outside the Firm? (Y/N) If yes:
 - (a) state all Person(s) with whom this revenue is shared;
 - (b) state the total revenue shared with Person(s) outside the Firm; and
 - (c) state the amount retained by the Firm.
2. For all forecasted revenues expected to be received by the Firm after the date of this Request
 - a. State the total revenue expected to be received by the Firm relating to all Transfers identified in Request G.
 - b. State the total revenue expected to be received by all other Person(s) outside the Firm relating to all Transfers identified in Request G.
 - c. State the total revenue expected to be received by the Firm relating to all Litigations identified in Request H.
 - d. State the total revenue expected to be received by all other Person(s) outside the Firm relating to all Litigations identified in Request H.2.
 - e. State the total revenue expected to be received by the Firm relating to all License Agreements identified in Request H.3.

- f. State the total revenue expected to be received by all other Person(s) outside the Firm relating to all License Agreements identified in Request H.3.
3. Produce, and provide a narrative response identifying by Reference Number, Documents sufficient to show all revenue identified in response to Request J
4. Produce, and provide a narrative response identifying by Reference Number, all Reports related to all forecasted revenues identified in response to Request J
5. Has the Firm received any revenue, either directly or indirectly, from the Assertion of any Patent by any Person not otherwise identified in response these requests? (Y/N) If yes:
 - a. State the Person(s) who paid this revenue to the Firm;
 - b. State the total amount of revenue received;
 - c. State the total amount of revenue expected to be received in the future; and
 - d. For each Person who paid this revenue to the Firm, provide a narrative response identifying the amount paid, identifying the amount expected to be paid in the future, and describing the Assertion.
6. Has the Firm received any revenue, either directly or indirectly, from the Acquisition of any Patent by any Person not otherwise identified in response these requests? (Y/N) If yes:
 - a. State the Person(s) who paid this revenue to the Firm;
 - b. State the total amount of revenue received;
 - c. State the total amount of revenue expected to be received in the future; and
 - d. For each Person who paid this revenue to the Firm, provide a narrative response identifying the amount paid, identifying the amount expected to be paid in the future, and describing the Acquisition.
7. Has the Firm received any revenue, either directly or indirectly, from the Transfer of any Patent by any Person not otherwise identified in response these requests? (Y/N) If yes:
 - a. State the Person(s) who paid this revenue to the Firm;
 - b. State the total amount of revenue received;
 - c. State the total amount of revenue expected to be received in the future; and
 - d. For each Person who paid this revenue to the Firm, provide a narrative response identifying the amount paid, identifying the amount expected to be paid in the future, and describing the Transfer.

APPENDIX A

A. General Instructions

1. The Firm's Special Report must be filed by November 21, 2014.
2. The Special Report must restate each item of the Information Requests with which the corresponding answer is identified.
3. The Special Report shall be entered into the Microsoft Excel workbook spreadsheets at <http://go.usa.gov/V6vA> with this Order whenever possible. The FTC has entered the information request numbers and the type of information that must be provided in the header row of each column. When it is not possible to enter the required answer or information into the applicable worksheet, the Firm shall provide the required answer in a Microsoft Word document.
4. Requests that require narrative responses shall be provided in a Microsoft Word document.
5. Requests that require a narrative response that identifies Reference Numbers shall be submitted in a Microsoft Word table, with two columns. The left column shall contain the request number, and the right column shall contain all responsive Document IDs or Document ID ranges. Where the same request requires multiple responses (e.g., where a request requires a separate response for each relevant person), provide each response in a separate row and note in brackets a differentiating characteristic following the Request Number.

REQUEST NUMBER	DOCUMENT_ID_XXXX-XX; DOCUMENT_ID_XXXX; DOCUMENT_ID_XXXX-XX
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or

REQUEST NUMBER[PERSON_1]	DOCUMENT_ID_XXXX-XX; DOCUMENT_ID_XXXX; DOCUMENT_ID_XXXX-XX
REQUEST NUMBER[PERSON_2]	DOCUMENT_ID_XXXX-XX; DOCUMENT_ID_XXXX; DOCUMENT_ID_XXXX-XX
REQUEST NUMBER[PERSON_3]	DOCUMENT_ID_XXXX-XX; DOCUMENT_ID_XXXX; DOCUMENT_ID_XXXX-XX

6. If any requested information cannot be provided fully, give the information that is available and explain in detail in what respects and why the response is incomplete.
7. The Firm shall submit all written responses in native electronic format. For narrative responses or responses identifying Reference Numbers, the Firm shall provide both

Microsoft Word and PDF versions. For all responses to be submitted via spreadsheet, the Firm shall submit its responses in native Microsoft Excel format.

B. Definitions

“Acquire” and **“Acquisition”** mean to purchase or obtain from another Person any Legal Right to a Patent, or to purchase or obtain a Person who Holds any Legal Right to a Patent. This definition does not include the assignment of Legal Rights to a Patent by a Firm employee who is bound to assign his or her Legal Rights to the Firm at the time of invention.

“Assert” and **“Assertion”** mean: (i) any Demand; (ii) any civil action threatened or commenced (by the Firm or other Person) relating to any Patent; or (iii) any investigation pursuant to 19 U.S.C. 1337 threatened or initiated (by the Firm or other Person) relating to any Patent. For Manufacturing Firms, **“Assert”** and **“Asserted”** do not include sales of products manufactured by the Firm, or on behalf of the Firm, that practice the claimed invention.

“Class” and **“Subclass”** have the meanings defined by the United States Patent and Trademark Office (USPTO).

“Demand” means any effort since January 1, 2009 to License any Patent, in whole or in part, and any other attempt to generate revenue by authorizing a Person outside the Firm to practice an invention claimed in a Patent. Demand does not include complaints or pleadings filed with a United States District Court or the United States International Trade Commission.

“Documents” means all electronically stored information, and written, recorded, and graphic materials of every kind in the possession, custody, or control of the Firm. Unless otherwise specified, the term **“Documents”** excludes: (i) bills of lading, invoices, purchase orders, customs declarations, and other similar documents of a purely transactional nature; (ii) architectural plans and engineering blueprints; and (iii) documents solely relating to environmental, human resources, OSHA, or ERISA compliance.

“Economic Interest” means any right or claim to current or future revenues derived from a Patent, including, but not limited to: lump-sum payments; royalties; access to other Patent(s) as part of a cross-Licensing agreement; a debt or equity interest in a Person that Asserts Patents; use of the Firm’s Legal Rights to any Patent as collateral for a Person’s loan or investment; or any other form of compensation relating to the Assertion, Acquisition, or Transfer of Patents Held by the Firm. **“Economic Interest”** does not include shareholders of publicly traded Firms that own less than 5% of the outstanding shares of any class of stock in the Firm.

“Firm” means the Person served with the information requests described in this notice.

“Hold” and **“Held”** mean to possess a Legal Right to a Patent.

“Legal Right” means any ownership interest in, an exclusive License to, or other rights adequate to License or enforce a Patent.

“Litigation” means any civil action commenced in a United States District Court or with the United States International Trade Commission.

“License” means authorization by the Patent holder to practice the claimed invention, including, but not limited to, a covenant not to sue and a covenant not to assert.

“Maintenance Fee(s)” has the meaning defined by the USPTO.

“**Patent**” means a United States patent or United States patent application as defined by 35 U.S.C. 101, *et seq.*

“**Patent Portfolio**” means a collection of patents Held by the Firm, including all of the patents Held by the Firm and any sub-groups into which the Firm organizes its patents.

“**Person**” means any natural person, corporation, association, firm, partnership, joint venture, trust, estate, agency, department, bureau, governmental, judicial, or legal entity, however organized or established.

“**Reference Number**” means a Bates number or other sequential identification number.

“**Report**” means all studies, analyses, and reports which were prepared by or for any officer(s) or director(s) of a corporate entity (or, in the case of unincorporated entities, individuals exercising similar functions) or presented to any Person outside the Firm (including, but not limited to, investment presentations and documents filed with the United States Internal Revenue Service or Securities and Exchange Commission).

“**Standard Setting Organization**” or “**SSO**” means any organization, group, joint venture, or consortium that develop standards for the design, performance, or other characteristics of products or technologies.

“**Transfer**” means the sale or exchange of any Legal Right to a Patent, including for monetary or other consideration or for no compensation.

“**Wireless Chipset**” means any baseband processor, radio frequency transceiver, integrated circuit, chip, or chipset, or any combination thereof, and any related software, used to implement wireless communication.

“**Wireless Communications Device**” means any device, including wireless chipsets, which implements wireless communication, including, but not limited to, software, user equipment, base stations, and network infrastructure.

“**Wireless Patent**” means any Patent Asserted against a Wireless Communication Device.

C. Data Submissions

1. Numerical Data

Unless modified by agreement in writing with the Office of Policy Planning Deputy Director, all requests for dollar amounts shall be entered as rounded to the nearest whole dollar, without commas or dollar signs.

Percentages shall be entered as a decimal, i.e., fifty percent shall be entered as <0.50>.

Dates shall be entered as <MM/DD/YYYY>.

2. Patents and Patent Applications

U.S. Patent numbers shall be provided as a seven-digit number <9999999>, without commas or spaces.

Reissue patents shall be provided as a six-digit number following the prefix “RE”: <RE999999>. Leading zeroes must be entered between “RE” and the number to create six digits.

Design patents shall be provided as a seven-digit number following the prefix “D”: <D9999999>. Leading zeroes must be entered between “D” and the number to create seven digits.

U.S. Patent application numbers shall be provided using the two-digit series code followed by the six-digit serial number assigned by the USPTO, in the following format: <99/999999>.

PCT or International Applications can be entered in either the old (14 character) or new WIPO formats. The old (14 character) format includes a two-digit year and five-character sequence number, *e.g.*, ‘PCT/US99/12345’. The new (17 character) format includes a four-digit year, *e.g.*, ‘PCT/US1999/123456’. The acceptable formats are as follows: <PCT/CCYY/99999 or PCT/CCYYYY/999999>, where

PCT = “PCT”
 CC = 2 character Country Code
 YY – last 2 digits of the year filed
 YYYY = four digit year filed
 99999, 999999 = is the 5 or 6 digit sequence number.

3. Jurisdiction and Docket Information

Responses to requests for the jurisdiction of a Litigation or bankruptcy proceeding should use the following formats:

For district court cases, give the district but not the division:

E.g., D.N.J.; or D.D.C.; or C.D. Cal.

For bankruptcy court cases, write the term “Bankr.” followed by the federal district name:

E.g., Bankr. D.N.J.; Bankr. D.D.C.

For International Trade Commission cases, write “USITC”.

Responses to requests for docket number shall be provided as follows:

For district court and bankruptcy cases, provide the docket number in any of the following formats:

<YY-NNNNN>
 <YY-TP-NNNNN>
 <YY TP NNNNN>
 <YYTPNNNNN>
 <O:YY-NNNNN>
 <O:YY-TP-NNNNN>
 <O:YY TP NNNNN>
 <O:YYTPNNNNN>, where

YY = Two or four digit code for the year filed
 NNNNN = Case number (up to five digits)
 TP = Case type (up to two characters)
 O = Office where the case was filed (1 digit)

For International Trade Commission Cases, write the Investigation Number:

E.g., No. 731-TA-1070B

For proceedings before the Patent Trial and Appeal Board at the United States Patent and Trademark Office, provide the docket number as <Proceeding Type><Year>-<Number>:

E.g., CBM2012-0001; or IPR2012-00001

For proceedings before the Board of Patent Appeals and Interferences at the United States Patent and Trademark Office, provide the docket number as:

BPAI<Year>-<Appeal Number>, where

<Year> = four digit number
 <Appeal Number> = six digit number, with leading zeroes where necessary.

D. Production of Documents

1. Form of Production. The Firm shall submit documents as instructed below absent written consent signed by an Office of Policy Planning Deputy Director.
 - (a) Documents stored in electronic or hard copy formats in the ordinary course of business shall be submitted in the following electronic format provided that such copies are true, correct, and complete copies of the original documents:
 - (i) Submit Microsoft Excel, Access, and PowerPoint files in native format with extracted text and metadata.

- (ii) Submit emails in image format with extracted text and the following metadata and information:

Metadata/Document Information	Description
Beginning Reference Number	The beginning Reference Number of the document.
Ending Reference Number	The last Reference Number of the document.
Custodian	The name of the original custodian of the file.
To	Recipients(s) of the email.
From	The person who authored the email.
CC	Person(s) copied on the email.
BCC	Person(s) blind copied on the email.
Subject	Subject line of the email.
Date Sent	Date the email was sent.
Time Sent	Time the email was sent.
Date Received	Date the email was received.
Time Received	Time the email was received.
Attachments	The Document ID of attachment(s).
Mail Folder Path	Location of email in personal folders, subfolders, deleted items or sent items.
Message ID	Microsoft Outlook Message ID or similar value in other message systems.

- (iii) Submit email attachments other than those identified in subpart (a)(i) in image format with extracted text and the following metadata and information:

Metadata/Document Information	Description
Beginning Reference	The beginning Reference Number of the

Number	document.
Ending Reference Number	The last Reference Number of the document.
Custodian	The name of the original custodian of the file.
Parent Email	The Document ID of the parent email.
Modified Date	The date the file was last changed and saved.
Modified Time	The time the file was last changed and saved.
Filename with extension	The name of the file including the extension denoting the application in which the file was created.
Originating Path	File path of the file as it resided in its original environment.
Production Link	Relative file path to production media of submitted native files. Example: FTC-001\NATIVE\001\FTC-00003090.xls.
Hash	The Secure Hash Algorithm (SHA) value for the original native file.

- (iv) Submit all other electronic documents other than those described in subpart (a)(i) in image format accompanied by extracted text and the following metadata and information:

Metadata/Document Information	Description
Beginning Reference Number	The beginning Reference Number of the document.
Ending Reference Number	The last Reference Number of the document.
Custodian	The name of the original custodian of the file.
Modified Date	The date the file was last changed and saved.
Modified Time	The time the file was last changed and saved.

Filename with extension	The name of the file including the extension denoting the application in which the file was created.
Production Link	Relative file path to production media of submitted native files. Example: FTC-001\NATIVE\001\FTC-00003090.xls.
Hash	The Secure Hash Algorithm (SHA) value for the original native file.

- (v) Submit documents stored in hard copy in image format accomplished by OCR with the following information:

Metadata/Document Information	Description
Beginning Reference Number	The beginning Reference Number of the document.
Ending Reference Number	The last Reference Number of the document.
Custodian	The name of the original custodian of the file.

- (vi) Submit redacted documents in PDF format accompanied by OCR with the metadata and information required by relevant document type in subparts (a)(i) through (a)(v) above. For example, if the redacted file was originally an attachment to an email, provide the metadata and information specified in subpart (a)(iii) above. Additionally, please provide a basis for each privilege claim as detailed in Instruction D.2.
- (b) Submit data compilations in electronic format, specifically Microsoft Excel spreadsheets or delimited text formats, with all underlying data un-redacted and all underlying formulas and algorithms intact.
- (c) If the Firm intends to utilize any de-duplication or email threading software or services when collecting or reviewing information that is stored in the Company's computer systems or electronic storage media, or if the Firm's computer systems contain or utilize such software, the Firm must contact the Commission to determine, with the assistance of the appropriate Commission representative, whether and in what manner the Firm may use such software or services when producing materials in response to this Order.
- (d) Produce electronic file and image submissions as follows:

- (i) For productions over 10 gigabytes, use hard disk drives, formatted in Microsoft Windows-compatible, uncompressed data in USB 2.0 or 3.0 external enclosure;
- (ii) For productions under 10 gigabytes, CD-R CD-ROM optical disks, DVD-ROM optical disks for Windows-compatible personal computers, and USB 2.0 Flash Drives are acceptable storage formats; and
- (iii) All documents produced in electronic format shall be scanned for and free of viruses prior to submission. The Commission will return any infected media for replacement, which may affect the timing of the Firm's compliance with this Order.
- (iv) Encryption of productions using NIST FIPS-Compliant cryptographic hardware or software modules, with passwords sent under separate cover, is strongly encouraged.
- (e) Each production shall be submitted with a transmittal letter that includes the FTC matter number; production volume name; encryption method/software used; passwords for any password protected files; total number of documents; and a list of load file fields in the order in which they are organized in the load file.

2. Privileged Material

(a) Privilege Log

- (i) If any documents are withheld from production based on a claim of privilege, provide a statement of the claim of privilege and all facts relied upon in support thereof, in the form of a log that includes each document's authors, addressees, date, a description of each document, and all recipients of the original and any copies.
- (ii) Attachments to a document should be identified as such and entered separately on the log.
- (iii) For each author, addressee, and recipient, state the person's full name, title, and employer or firm, and denote all attorneys with an asterisk.
- (iv) The description of the subject matter shall describe the nature of each document in a manner that, though not revealing information itself privileged, provides sufficiently detailed information to enable Commission staff, the Commission, or a court to assess the applicability of the privilege claimed.

- (v) For each document withheld under a claim that it constitutes or contains attorney work product, also state whether the company asserts that the document was prepared in anticipation of litigation or for trial and, if so, identify the anticipated litigation or trial upon which the assertion is based.
- (vi) Submit all non-privileged portions of any responsive document (including non-privileged or redactable attachments) for which a claim of privilege is asserted (except where the only nonprivileged information has already been produced in response to this instruction), noting where redactions in the document have been made. On the log, list the Reference Number of the non-privileged portions of such responsive documents.

3. All documents responsive to this Order:

- (a) Shall be produced in complete form, unredacted unless privileged, and in the order in which they appear in the Firm's files;
- (b) Shall be marked on each page with corporate identification and consecutive document control numbers when produced in image format;
- (c) Shall be produced in color where necessary to interpret the document (if the coloring of any document communicates any substantive information, or if black-and-white photocopying or conversion to TIFF format of any document (e.g., a chart or graph), makes any substantive information contained in the document unintelligible, the Firm must submit the original document, a like-colored photocopy, or a JPEG format image);
- (d) Shall be accompanied by an affidavit of an officer of the Firm stating that the copies are true, correct, and complete copies of the original documents; and
- (e) Shall be accompanied by an index that identifies (i) the name of each person from whom responsive documents are submitted; and (ii) the corresponding consecutive document control numbers(s) used to identify that person's documents. The Commission representative will provide a sample index upon request.

APPENDIX B

Certification

This Special Report, together with any and all appendices and attachments thereto, was prepared and assembled under my supervision in accordance with instructions issued by the Federal Trade Commission in its Special Orders for the Patent Assertion Entity Study. Subject to the recognition that, where so indicated, reasonable estimates have been made because books and records do not provide the required information, the information is, to the best of my knowledge, true, correct, and complete. Where copies rather than original documents have been submitted, the copies are true, correct, and complete.

Type or Print Name and Title

Type or Print Firm Name and Address

Type or Print Phone Number and Email Address

(Signature)

Subscribed and sworn to before me at the City of _____.

State of _____, this, _____ day of _____, 201____.

(Notary Public)

My Commission Expires: _____

APPENDIX D: WIRELESS CASE STUDY SPECIAL ORDER

SPECIFICATIONS

A. Identification of Report Author: Identify by full name, title, business address, telephone number, email address, and official capacity the Person(s) who prepared or supervised the preparation of the Firm's response to the Information Requests.

B. Firm Information

1. State the Firm's complete legal name and all other names under which it has done business since January 1, 2009, its corporate mailing address, all addresses and websites from which it does or has done business since January 1, 2009, and the date(s) and state(s) of its incorporation.
2. Describe the Firm's business and corporate structure, provide an organizational chart stating the names of all parents, wholly or partially owned subsidiaries, incorporated or unincorporated divisions, affiliates, branches, joint ventures, franchises, operations under assumed names, websites, or other Person(s) over which the Firm exercises or has exercised supervision or control since January 1, 2009 who Assert Wireless Patents. When responding to these Information Requests, separately provide all information for the Firm and each related Person(s) identified in response to Request B2.
3. Has more than one Person identified in response to Request B2 engaged in Assertions relating to Wireless Patents against the same Person. (Y/N) If yes, name the Person(s) identified in response to Request B2 that made the Assertions, name the Person subject to the Assertions, state the date of each Assertion; and identify the Wireless Patent(s) related to each Assertion.
4. If the Firm is an exclusive Licensee to any Wireless Patent(s), produce, and provide a narrative response identifying by Reference Number, the License, state whether there are any geographic limitations to the License, whether there are any field of use limitations to the License, and whether the field of use restriction is in the following sectors: Chemical, Computers & Communications, Drugs & Medical, Semiconductors, Other Electrical & Electronic, Mechanical, or Other, and produce, and provide a narrative response identifying by Reference Number, all related Reports.

C. Standard Setting Commitments

1. If any Person has committed to a Standard Setting Organization that it will License any Wireless Patent(s) Held by the Firm since January 1, 2009, for each commitment
 - a. State the date the commitment was made.
 - b. Identify the Person who made the commitment.
 - c. Identify the Standard Setting Organization.
 - d. Identify the standard(s) to which the commitment applies.
 - e. State whether the commitment is to License the Wireless Patent(s) or any Patent claim(s) on reasonable and non-discriminatory (RAND); fair,

reasonable, and non-discriminatory (FRAND); royalty-free (RF); or other terms.

- (1) if the commitment is to License on terms other than RAND, FRAND, or RF, provide a narrative response describing the terms.

f. Is the commitment subject to a field of use restriction? (Y/N) If yes:

- (1) state the specific field of use restriction(s); and
- (2) identify, from the following list, in which sector(s) is the field of use restriction: Chemical, Computers & Communications, Drugs & Medical, Semiconductors, Other Electrical & Electronic, Mechanical, or Other.

g. Provide a narrative response listing all Patent(s) that any Person has declared, or otherwise identified to any Person, as subject to the commitment.

h. Produce, and provide a narrative response identifying by Reference Number, all agreements embodying the commitment.

D. Patent Transfer Information

1. For each transaction in which the Firm Transferred Wireless Patent(s) since January 1, 2009

- a. State the date of the transaction.
- b. State the Person(s) who Transferred the Patent(s).
- c. State the Person(s) to whom the Patent(s) were Transferred.
 - (1) did the Firm Transfer the Patent(s) to a Person that the Firm identifies as a Patent Assertion Entity? (Y/N)
- d. State the total number of Patent(s) Transferred in the transaction.
- e. For each Patent Transferred in the transaction:
 - (1) state the Patent number.
 - (2) did the Firm assign the Patent in connection with the transaction? (Y/N) If yes:
 - (a) was the assignment recorded with the United States Patent and Trademark Office? (Y/N)
 - (3) did the Firm grant an exclusive License to the Patent(s) in connection with the transaction? (Y/N)
- f. Did the Firm transfer existing License obligations to the Patent(s)? (Y/N) If yes:
 - (1) state the total number of License obligations transferred; and
 - (2) state the total revenue received by the Firm from these Licenses.
- g. Did the Firm Transfer the Patent(s) in connection with any proceeding before a United States Bankruptcy Court? (Y/N) If yes:

- (1) state the jurisdiction; and
 - (2) state the docket number.
- h. Was the Firm paid a lump-sum payment(s), *i.e.* a payment not directly affected by the transferee's future revenue or unit sales, to Transfer the Patent(s)? (Y/N) If yes, for each Person making payments to the Firm:
- (1) state the Person from whom the payment was received;
 - (2) state the total amount of the lump-sum payment(s) received;
 - (3) state the total amount of the lump-sum payment(s) expected to be received in the future;
 - (4) if any agreement(s) define(s) the payment terms, produce, and provide a narrative response identifying by Reference Number, the agreement(s); and
 - (5) provide a narrative response describing the method for calculating the payment(s).
- i. Did the Firm receive, or is it receiving, an on-going payment, *i.e.*, a payment that is directly affected by either the transferee's future revenue or unit sales, from the Person(s) receiving the Patent(s)? (Y/N) If yes, for each Person making payments to the Firm:
- (1) state the Person(s) from whom the payment(s) are received;
 - (2) state the total amount of the on-going payments received from this Person(s), by calendar year, made to the date of this Request;
 - (3) state the total amount of payments expected to be received in the future;
 - (4) if any agreement(s) define(s) the payment terms, produce, and provide a narrative response identifying by Reference Number, the agreement(s); and
 - (5) provide a narrative response describing the method for calculating the on-going payment(s).
- j. Does the Transfer involve a cross-License? (Y/N) If yes:
- (1) state the date of the cross-License agreement.
 - (2) Has the Firm assigned a value to the cross-License? (Y/N) If yes:
 - (a) state the date of the most recent valuation;
 - (b) state the amount of the most recent valuation;
 - (c) provide a narrative response identifying by date and amount all prior valuations by, or on behalf of, the Firm; and
 - (d) produce, and provide a narrative response identifying by Reference Number, all related Reports.

- (3) produce, and provide a narrative response identifying by Reference Number, the cross-License; and
 - (4) produce, and provide a narrative response identifying by Reference Number, all related Reports.
 - k. Did any Person outside the Firm share in the proceeds from the Transfer? (Y/N) If yes:
 - (1) state the Person(s) who shared in the proceeds from the Transfer;
 - (2) state the total amount shared with other Person(s) to the date of this Request;
 - (3) state the total amount expected to be shared with other Person(s) in the future;
 - (4) produce, and provide a narrative response identifying by Reference Number, all related agreements;
 - (5) produce, and provide a narrative response identifying by Reference Number, all related Reports; and
 - (6) for each Person identified, provide a narrative response stating the amount shared with each Person, the amount expected to be shared in the future, and the method for calculating this amount.
 - l. Produce, and provide a narrative response identifying by Reference Number, all Reports related to the Transfer.
 - m. Produce, and provide a narrative response identifying by Reference Number, all agreements related to the Transfer.
- 2. To the extent not identified in these Information Requests, produce, and provide a narrative response identifying by Reference Number, all agreements between the Firm and any Person executed since January 1, 2009 relating to any Transfer by the Firm of any Legal Right to a Patent
 - a. For any such agreement produced, also produce, and provide a narrative response identifying by Reference Number, all Reports that (i) evaluate or analyze the reasons for entering into the agreement or (ii) evaluate or analyze the calculation of any payment relating to the Acquisition.

E. Patent Assertion Information

- 1. Demand Information: For each Demand made by, or on behalf of, the Firm since January 1, 2009, relating to Wireless Patent(s)
 - a. State the date of the Demand.
 - b. State the Person(s) who made the Demand, *e.g.* the Firm or one of its related Person(s).
 - c. State the Person(s) to whom the Demand was made.
 - d. State the Patent(s) that formed the basis of the Demand.

- e. Identify, from the following list, in which sector(s) the Demand was made:
Chemical, Computers & Communications, Drugs & Medical,
Semiconductors, Other Electrical & Electronic, Mechanical, or Other.
 - f. Was the Demand limited to geographic area(s)? (Y/N) If yes:
(1) identify the geographic area(s).
 - g. State all accused product(s) relating to the Demand.
 - h. Produce, and provide a narrative response identifying by Reference Number, a copy of each Demand Document and all appendices, including, but not limited to, claim charts, and all Reports related to the Demand.
2. Litigation Information: For each Litigation commenced since January 1, 2009 relating to a Wireless Patent Held by the Firm, or a Wireless Patent in which the Firm has an Economic Interest, separately for each Person (collectively including its parents, subsidiaries, and affiliates) named as a defendant (if the Firm is a plaintiff) or as a declaratory judgment plaintiff (if the Firm is a defendant)
- a. State the jurisdiction in which the Litigation was commenced.
 - b. State the docket number of the Litigation.
 - c. State the date the Litigation was commenced.
 - d. State all plaintiffs named or otherwise joined in the Litigation.
 - e. State the defendant (including parents, subsidiaries, and affiliates) named or otherwise joined in the Litigation.
 - f. State all Patents Asserted.
 - g. Identify, from the following list, in which sector(s) the Patents were asserted:
Chemical, Computers & Communications, Drugs & Medical,
Semiconductors, Other Electrical & Electronic, Mechanical, or Other.
 - h. Produce, and provide a narrative response identifying by Reference Number, all orders relating to all dispositive motions.
 - i. Produce, and provide a narrative response identifying by Reference Number, all expert reports exchanged during Litigation that offer an opinion related to the valuation of the Patent(s) or damages relating to the Litigation.
 - j. Is the Litigation pending? (Y/N) If no:
(1) state the date of termination.
(2) state whether the Litigation terminated upon successful dispositive motion, jury verdict, judgment following trial on the merits, appeal, settlement, or other (if other, explain).
(3) provide a narrative response identifying all Patent claims found infringed, valid, and enforceable.
(4) did a permanent injunction, exclusion order, or cease and desist order issue? (Y/N)

- (5) did the court award damages? (Y/N) If yes:
 - (a) state the amount awarded; and
 - (b) state the amount actually paid to the prevailing party.
- (6) did the court award fees pursuant to 35 U.S.C. 285? (Y/N) If yes:
 - (a) state the fees awarded; and
 - (b) state the amount actually paid to the prevailing party.
- (7) did the court issue sanctions pursuant to Rule 11 of the Federal Rules of Civil Procedure? (Y/N)
- (8) did the Litigation terminate upon exhaustion of appellate process? (Y/N)

k. Did the Litigation settle? (Y/N) If yes:

- (1) did the settlement result in a License agreement? (Y/N) If yes:
 - (a) state the date of the License agreement;
 - (b) state the Licensee; and
 - (c) state the Licensor.
- (2) when was settlement reached: after the complaint was filed; after a successful dispositive motion, after a jury verdict, after judgment following trial on the merits, after appeal, or other (if other, explain)?
- (3) did the Court issue an order construing any claim(s) of the Patent(s) Asserted before settlement was reached? (Y/N) If yes:
 - (a) produce, and provide a narrative response identifying by Reference Number, the order.
- (4) state the total revenue the Firm has received under the terms of the settlement agreement from January 1, 2009 to the date of this Request. Do not report revenue reported for any License identified in response to D.3 below.
 - (a) was any part of this revenue received as a lump-sum payment, *i.e.* a payment not directly affected by the defendant's future revenue or unit sales? (Y/N) If yes:
 - (1) state the total revenue the Firm has received to the date of this request in lump-sum payments; and
 - (2) state the total revenue the Firm expects to receive in lump-sum payments in the future.
 - (b) was any part of this revenue received as an on-going payment, *i.e.*, a payment that is directly affected by either the defendant's future revenue or unit sales? (Y/N) If yes:

- (1) state the total revenue the Firm has received to the date of this request in on-going payments; and
 - (2) state the total revenue the Firm expects to receive in on-going payments in the future.
 - (c) is this revenue shared with anyone outside the Firm? (Y/N)

If yes:

 - (1) state the total amount shared outside the Firm.
 - (2) if the revenue is part of an ongoing payment, state the total amount the Firm expects to share in the future.
 - (3) is any revenue shared pursuant to a contingency fee or risk-sharing agreement? (Y/N) If yes:
 - (A) state the total amount shared pursuant to a contingency fee or risk-sharing agreement;
 - (B) state the Person(s) outside the Firm who is party to the agreement; and
 - (C) provide a narrative response stating the amount the Firm shared with each Person, the amount the Firm expects to share in the future, and describing the method for calculating this amount.
 - (4) state all Person(s) with whom this revenue is shared.
 - (A) are any of these Person(s) the named inventor of any Patent Asserted in the Litigation? (Y/N)
 - (B) are any of these Person(s) the employer of the named inventor of any Patent Asserted in the Litigation? (Y/N)
 - (5) produce, and provide a narrative response identifying by Reference Number, all revenue sharing agreements.
 - (6) provide a narrative response stating the amount shared with each Person and describing the method for calculating this amount.
1. State the Firm's total expenses relating to the Litigation from January 1, 2009 to the date of this Request.
- (1) are these expenses shared with any Person(s) outside the Firm? (Y/N)

If yes:

 - (a) state the total amount of expenses shared outside the Firm;

- (b) identify all Person(s) with whom expenses are shared;
 - (c) produce, and provide a narrative response identifying by Reference Number, all expense sharing agreements;
 - (d) produce, and provide a narrative response identifying by Reference Number, all Reports related to all expense sharing agreements; and
 - (e) provide a narrative response stating the amount shared with each Person and describing the method for calculating this amount.
- m. State all projected revenues relating to the Litigation from the date of this Request.
 - (1) provide a narrative response describing the method for calculating the projected revenue, *e.g.* as a fraction of revenue or a fee per unit sold.
- n. To the extent not identified above, produce, and provide a narrative response identifying by Reference Number, all agreements related to the Litigation and produce, and provide a narrative response identifying by Reference Number, all Reports related to the Litigation.
- 3. License Information: For each License executed since January 1, 2009 relating to a Wireless Patent Held by the Firm or a Wireless Patent in which the Firm has an Economic Interest
 - a. Who is the Licensor?
 - b. Who is the Licensee?
 - c. Identify all Patent(s) Licensed.
 - d. What is the effective date of the License agreement?
 - e. Does the License relate to a Wireless Patent Held by the Firm? (Y/N)
 - f. Does the License relate to a Wireless Patent in which the Firm has an Economic Interest? (Y/N)
 - g. For each Litigation related to the License:
 - (1) State the jurisdiction in which the Litigation was commenced.
 - (2) State the docket number of the Litigation.
 - h. Does the License contain a field of use restriction? (Y/N) If yes:
 - (1) state the specific field of use restriction ; and
 - (2) identify, from the following list, in which sector(s) is the field of use restriction: Chemical, Computers & Communications, Drugs & Medical, Semiconductors, Other Electrical & Electronic, Mechanical, or Other.
 - i. Does the License contain a geographic restriction? (Y/N) If yes:

- (1) identify the geographic restriction(s).
- j. State the duration of the License agreement?
- k. State the Licensed products or services.
- l. Does the License include any cross-License? (Y/N) If yes:
 - (1) has the Firm assigned a value to the cross-License? (Y/N) If yes:
 - (a) state the date of the most recent valuation; and
 - (b) state the amount of the most recent valuation; and
 - (c) provide a narrative response identifying by date and amount all prior valuations by, or on behalf of, the Firm; and
 - (d) produce, and provide a narrative response identifying by Reference Number, all related Reports.
 - (2) produce, and provide a narrative response identifying by Reference Number, the cross-License.
- m. Provide a narrative response identifying the number of Patents cross-Licensed, as well as whether the cross-License is exclusive, whether there are any geographic limitations to the cross-License, whether there are any field of use limitations to the cross-License, and whether the field of use restriction is in the following sectors: Chemical, Computers & Communications, Drugs & Medical, Semiconductors, Other Electrical & Electronic, Mechanical, or Other.
- n. State the total revenue the Firm has received under the terms of the License from January 1, 2009 to the date of this Request.
 - (1) was any part of this revenue received as a lump-sum payment, *i.e.* a payment not directly affected by the defendant's future revenue or unit sales? (Y/N) If yes:
 - (a) state the total revenue the Firm has received to the date of this request in lump-sum payments.
 - (2) was any part of this revenue received as an on-going payment, *i.e.*, a payment that is directly affected by either the defendant's future revenue or unit sales? (Y/N) If yes:
 - (a) state the total revenue the Firm has received to the date of this request in on-going payments.
 - (3) is this revenue shared with anyone outside the Firm? (Y/N) If yes:
 - (a) state the total amount shared outside the Firm.
 - (b) if the revenue is part of an ongoing payment, state the total amount the Firm expects to share in the future.
 - (c) state all Person(s) with whom this revenue is shared.

- (1) are any of these Person(s) the named inventor of any of the Licensed Patents? (Y/N)
 - (2) are any of these Person(s) the employer of the named inventor of any of the Licensed Patents? (Y/N)
 - (d) produce, and provide a narrative response identifying by Reference Number, all revenue sharing agreements.
 - (e) provide a narrative response stating the amount the Firm shared with each Person and the amount the Firm expects to share in the future and describing the method for calculating this amount.
 - o. State the Firm's total expenses relating to the License agreement from January 1, 2009 to the date of this Request.
 - (1) are these expenses shared with any Person(s) outside the Firm? (Y/N)

If yes:

 - (a) state the total amount of expenses shared outside the Firm;
 - (b) identify all Person(s) with whom expenses are shared;
 - (c) produce, and provide a narrative response identifying by Reference Number, all expense sharing agreements;
 - (d) produce, and provide a narrative response identifying by Reference Number, all Reports related to all expense sharing agreements; and
 - (e) provide a narrative response stating the amount of expenses shared with each Person and describing the method for calculating this amount.
 - p. State all projected revenues relating to the License from the date of this Request.
 - (1) provide a narrative response describing the method for calculating the projected revenue, *e.g.* as a fraction of revenue or a fee per unit sold.
 - q. Produce, and provide a narrative response identifying by Reference Number, all Reports related to the License.
 - r. Produce, and provide a narrative response identifying by Reference Number, all agreements related to the License.
4. To the extent not identified above, produce, and provide a narrative response identifying by Reference Number, all agreements related to any Assertion relating to a Wireless Patent Held by the Firm, or a Wireless Patent in which the Firm has an Economic Interest and produce, and provide a narrative response identifying by Reference Number, all related Reports.

F. Aggregate Cost Information

1. Separately, for each year since January 1, 2009
 - a. State the total cost to the Firm relating to all Litigations identified in response to Request E.2.
 - (1) did the Firm share Litigation costs with Person(s) outside the Firm?
(Y/N) If yes:
 - (a) state all Person(s) with whom these costs are shared;
 - (b) state the total amount paid by Person(s) outside the Firm;
and
 - (c) state the total amount paid by the Firm.
 - b. State the total cost to the Firm relating to all Licenses identified in response to Request E.3.
 - (1) did the Firm share License costs with Person(s) outside the Firm?
(Y/N) If yes:
 - (a) state all Person(s) with whom these costs are shared;
 - (b) state the total amount paid by Person(s) outside the Firm;
and
 - (c) state the total amount paid by the Firm.
2. For all forecasted costs expected to be paid after the date of this Request
 - a. State the total cost expected to be paid by the Firm relating to all Litigations identified in Request E.2.
 - b. State the total cost expected to be paid by all other Person(s) outside the Firm relating to all Litigations identified in Request E.2.
 - c. State the total cost expected to be paid by the Firm relating to all License Agreements identified in Request E.3.
 - d. State the total cost expected to be paid by all other Person(s) outside the Firm relating to all License Agreements identified in Request E.3.
 - e. Produce, and provide a narrative response identifying by Reference Number, all Reports related to all forecasted costs identified in response to this Request.
3. Produce, and provide a narrative response identifying by Reference Number, Documents sufficient to show all costs and payments identified in response to this Request

G. Aggregate Revenue Information

1. Separately, for each year since January 1, 2009
 - a. State the total revenue received by the Firm relating to all Transfers identified in response to Request D.

- (1) did the Firm share Transfer revenue with Person(s) outside the Firm?
(Y/N) If yes:
 - (a) state all Person(s) with whom this revenue is shared;
 - (b) state the amount of revenue shared with Person(s) outside the Firm; and
 - (c) state the amount retained by the Firm.
 - b. State the total revenue received by the Firm relating to all Litigations identified in response to Request E.2.
 - (1) did the Firm share Litigation revenue with Person(s) outside the Firm?
(Y/N) If yes:
 - (a) state all Person(s) with whom this revenue is shared;
 - (b) state the total revenue shared with Person(s) outside the Firm; and
 - (c) state the amount retained by the Firm.
 - c. State the total revenue received by the Firm relating to all Licenses identified in response to Request E.3.
 - (1) did the Firm share License revenue with Person(s) outside the Firm?
(Y/N) If yes:
 - (a) state all Person(s) with whom this revenue is shared;
 - (b) state the total revenue shared with Person(s) outside the Firm; and
 - (c) state the amount retained by the Firm.
2. For all forecasted revenues expected to be received by the Firm after the date of this Request
 - a. State the total revenue expected to be received by the Firm relating to all Transfers identified in Request D.
 - b. State the total revenue expected to be received by all other Person(s) outside the Firm relating to all Transfers identified in Request D.
 - c. State the total revenue expected to be received by the Firm relating to all Litigations identified in Request E.2.
 - d. State the total revenue expected to be received by all other Person(s) outside the Firm relating to all Litigations identified in Request E.2.
 - e. State the total revenue expected to be received by the Firm relating to all License Agreements identified in Request E.3.
 - f. State the total revenue expected to be received by all other Person(s) outside the Firm relating to all License Agreements identified in Request E.3.

3. Produce, and provide a narrative response identifying by Reference Number, Documents sufficient to show all revenue identified in response to Request G
4. Produce, and provide a narrative response identifying by Reference Number, all Reports related to all forecasted revenues identified in response to Request G
5. Has the Firm received any revenue, either directly or indirectly, from the Assertion of any Wireless Patent by any Person not otherwise identified in response these requests? (Y/N) If yes:
 - a. state the Person(s) who paid this revenue to the Firm;
 - b. state the total amount of revenue received;
 - c. state the total amount of revenue expected to be received in the future; and
 - d. for each Person who paid this revenue to the Firm, provide a narrative response identifying the amount paid, identifying the amount expected to be paid in the future, and describing the Assertion.
6. Has the Firm received any revenue, either directly or indirectly, from the Transfer of any Wireless Patent by any Person not otherwise identified in response these requests? (Y/N) If yes:
 - a. state the Person(s) who paid this revenue to the Firm;
 - b. state the total amount of revenue received;
 - c. state the total amount of revenue expected to be received in the future; and
 - d. for each Person who paid this revenue to the Firm, provide a narrative response identifying the amount paid, identifying the amount expected to be paid in the future, and describing the Transfer.

APPENDIX A

A. General Instructions

1. The Firm's Special Report must be filed by November 21, 2014.
2. The Special Report must restate each item of the Information Requests with which the corresponding answer is identified.
3. The Special Report shall be entered into the Microsoft Excel workbook spreadsheets at <http://go.usa.gov/V6wB> with this Order whenever possible. The FTC has entered the information request numbers and the type of information that must be provided in the header row of each column. When it is not possible to enter the required answer or information into the applicable worksheet, the Firm shall provide the required answer in a Microsoft Word document.
4. Requests that require narrative responses shall be provided in a Microsoft Word document.
5. Requests that require a narrative response that identifies Reference Numbers shall be submitted in a Microsoft Word table, with two columns. The left column shall contain the request number, and the right column shall contain all responsive Document IDs or Document ID ranges. Where the same request requires multiple responses (e.g., where a request requires a separate response for each relevant person), provide each response in a separate row and note in brackets a differentiating characteristic following the Request Number.

REQUEST NUMBER	DOCUMENT_ID_XXXX-XX; DOCUMENT_ID_XXXX; DOCUMENT_ID_XXXX-XX
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or

REQUEST NUMBER[PERSON_1]	DOCUMENT_ID_XXXX-XX; DOCUMENT_ID_XXXX; DOCUMENT_ID_XXXX-XX
REQUEST NUMBER[PERSON_2]	DOCUMENT_ID_XXXX-XX; DOCUMENT_ID_XXXX; DOCUMENT_ID_XXXX-XX
REQUEST NUMBER[PERSON_3]	DOCUMENT_ID_XXXX-XX; DOCUMENT_ID_XXXX; DOCUMENT_ID_XXXX-XX

6. If any requested information cannot be provided fully, give the information that is available and explain in detail in what respects and why the response is incomplete.
7. The Firm shall submit all written responses in native electronic format. For narrative responses or responses identifying Reference Numbers, the Firm shall provide both

Microsoft Word and PDF versions. For all responses to be submitted via spreadsheet, the Firm shall submit its responses in native Microsoft Excel format.

B. Definitions

“Acquire” and **“Acquisition”** mean to purchase or obtain from another Person any Legal Right to a Patent, or to purchase or obtain a Person who Holds any Legal Right to a Patent. This definition does not include the assignment of Legal Rights to a Patent by a Firm employee who is bound to assign his or her Legal Rights to the Firm at the time of invention.

“Assert” and **“Assertion”** mean: (i) any Demand; (ii) any civil action threatened or commenced (by the Firm or other Person) relating to any Patent; or (iii) any investigation pursuant to 19 U.S.C. 1337 threatened or initiated (by the Firm or other Person) relating to any Patent. For Manufacturing Firms, **“Assert”** and **“Asserted”** do not include sales of products manufactured by the Firm, or on behalf of the Firm, that practice the claimed invention.

“Class” and **“Subclass”** have the meanings defined by the United States Patent and Trademark Office (USPTO).

“Demand” means any effort since January 1, 2009 to License any Patent, in whole or in part, and any other attempt to generate revenue by authorizing a Person outside the Firm to practice an invention claimed in a Patent. Demand does not include complaints or pleadings filed with a United States District Court or the United States International Trade Commission.

“Documents” means all electronically stored information, and written, recorded, and graphic materials of every kind in the possession, custody, or control of the Firm. Unless otherwise specified, the term **“Documents”** excludes: (i) bills of lading, invoices, purchase orders, customs declarations, and other similar documents of a purely transactional nature; (ii) architectural plans and engineering blueprints; and (iii) documents solely relating to environmental, human resources, OSHA, or ERISA compliance.

“Economic Interest” means any right or claim to current or future revenues derived from a Patent, including, but not limited to: lump-sum payments; royalties; access to other Patent(s) as part of a cross-Licensing agreement; a debt or equity interest in a Person that Asserts Patents; use of the Firm’s Legal Rights to any Patent as collateral for a Person’s loan or investment; or any other form of compensation relating to the Assertion, Acquisition, or Transfer of Patents Held by the Firm. **“Economic Interest”** does not include shareholders of publicly traded Firms that own less than 5% of the outstanding shares of any class of stock in the Firm.

“Firm” means the Person served with the information requests described in this notice.

“Hold” and **“Held”** mean to possess a Legal Right to a Patent.

“Legal Right” means any ownership interest in, an exclusive License to, or other rights adequate to License or enforce a Patent.

“Litigation” means any civil action commenced in a United States District Court or with the United States International Trade Commission.

“License” means authorization by the Patent holder to practice the claimed invention, including, but not limited to, a covenant not to sue and a covenant not to assert.

“Maintenance Fee(s)” has the meaning defined by the USPTO.

“Patent” means a United States patent or United States patent application as defined by 35 U.S.C. 101, *et seq.*

“Patent Portfolio” means a collection of patents Held by the Firm, including all of the patents Held by the Firm and any sub-groups into which the Firm organizes its patents.

“Person” means any natural person, corporation, association, firm, partnership, joint venture, trust, estate, agency, department, bureau, governmental, judicial, or legal entity, however organized or established.

“Reference Number” means a Bates number or other sequential identification number.

“Report” means all studies, analyses, and reports which were prepared by or for any officer(s) or director(s) of a corporate entity (or, in the case of unincorporated entities, individuals exercising similar functions) or presented to any Person outside the Firm (including, but not limited to, investment presentations and documents filed with the United States Internal Revenue Service or Securities and Exchange Commission).

“Standard Setting Organization” or **“SSO”** means any organization, group, joint venture, or consortium that develop standards for the design, performance, or other characteristics of products or technologies.

“Transfer” means the sale or exchange of any Legal Right to a Patent, including for monetary or other consideration or for no compensation.

“Wireless Chipset” means any baseband processor, radio frequency transceiver, integrated circuit, chip, or chipset, or any combination thereof, and any related software, used to implement wireless communication.

“Wireless Communications Device” means any device, including wireless chipsets, which implements wireless communication, including, but not limited to, software, user equipment, base stations, and network infrastructure.

“Wireless Patent” means any Patent Asserted against a Wireless Communication Device.

C. Data Submissions

1. Numerical Data

Unless modified by agreement in writing with the Office of Policy Planning Deputy Director, all requests for dollar amounts shall be entered as rounded to the nearest whole dollar, without commas or dollar signs.

Percentages shall be entered as a decimal, i.e., fifty percent shall be entered as <0.50>.

Dates shall be entered as <MM/DD/YYYY>.

2. Patents and Patent Applications

U.S. Patent numbers shall be provided as a seven-digit number <9999999>, without commas or spaces.

Reissue patents shall be provided as a six-digit number following the prefix “RE”: <RE999999>. Leading zeroes must be entered between “RE” and the number to create six digits.

Design patents shall be provided as a seven-digit number following the prefix “D”: <D9999999>. Leading zeroes must be entered between “D” and the number to create seven digits.

U.S. Patent application numbers shall be provided using the two-digit series code followed by the six-digit serial number assigned by the USPTO, in the following format: <99/999999>.

PCT or International Applications can be entered in either the old (14 character) or new WIPO formats. The old (14 character) format includes a two-digit year and five-character sequence number, *e.g.*, ‘PCT/US99/12345’. The new (17 character) format includes a four-digit year, *e.g.*, ‘PCT/US1999/123456’. The acceptable formats are as follows: <PCT/CCYY/99999 or PCT/CCYYYY/999999>, where

PCT = “PCT”

CC = 2 character Country Code

YY – last 2 digits of the year filed

YYYY = four digit year filed

99999, 999999 = is the 5 or 6 digit sequence number.

3. Jurisdiction and Docket Information

Responses to requests for the jurisdiction of a Litigation or bankruptcy proceeding should use the following formats:

For district court cases, give the district but not the division:

E.g., D.N.J.; or D.D.C.; or C.D. Cal.

For bankruptcy court cases, write the term “Bankr.” followed by the federal district name:

E.g., Bankr. D.N.J.; Bankr. D.D.C.

For International Trade Commission cases, write “USITC”.

Responses to requests for docket number shall be provided as follows:

For district court and bankruptcy cases, provide the docket number in any of the following formats:

<YY-NNNNN>
 <YY-TP-NNNNN>
 <YY TP NNNNN>
 <YYTPNNNNN>
 <O:YY-NNNNN>
 <O:YY-TP-NNNNN>
 <O:YY TP NNNNN>
 <O:YYTPNNNNN>, where

YY = Two or four digit code for the year filed

NNNNN = Case number (up to five digits)

TP = Case type (up to two characters)

O = Office where the case was filed (1 digit)

For International Trade Commission Cases, write the Investigation Number:

E.g., No. 731-TA-1070B

For proceedings before the Patent Trial and Appeal Board at the United States Patent and Trademark Office, provide the docket number as <Proceeding Type><Year>-<Number>:

E.g., CBM2012-0001; or IPR2012-00001

For proceedings before the Board of Patent Appeals and Interferences at the United States Patent and Trademark Office, provide the docket number as:

BPAI<Year>-<Appeal Number>, where

<Year> = four digit number

<Appeal Number> = six digit number, with leading zeroes where necessary.

D. Production of Documents

1. Form of Production. The Firm shall submit documents as instructed below absent written consent signed by an Office of Policy Planning Deputy Director.
 - (a) Documents stored in electronic or hard copy formats in the ordinary course of business shall be submitted in the following electronic format provided that such copies are true, correct, and complete copies of the original documents:
 - (i) Submit Microsoft Excel, Access, and PowerPoint files in native format with extracted text and metadata.

- (ii) Submit emails in image format with extracted text and the following metadata and information:

Metadata/Document Information	Description
Beginning Reference Number	The beginning Reference Number of the document.
Ending Reference Number	The last Reference Number of the document.
Custodian	The name of the original custodian of the file.
To	Recipients(s) of the email.
From	The person who authored the email.
CC	Person(s) copied on the email.
BCC	Person(s) blind copied on the email.
Subject	Subject line of the email.
Date Sent	Date the email was sent.
Time Sent	Time the email was sent.
Date Received	Date the email was received.
Time Received	Time the email was received.
Attachments	The Document ID of attachment(s).
Mail Folder Path	Location of email in personal folders, subfolders, deleted items or sent items.
Message ID	Microsoft Outlook Message ID or similar value in other message systems.

- (iii) Submit email attachments other than those identified in subpart (a)(i) in image format with extracted text and the following metadata and information:

Metadata/Document Information	Description
Beginning Reference	The beginning Reference Number of the

Number	document.
Ending Reference Number	The last Reference Number of the document.
Custodian	The name of the original custodian of the file.
Parent Email	The Document ID of the parent email.
Modified Date	The date the file was last changed and saved.
Modified Time	The time the file was last changed and saved.
Filename with extension	The name of the file including the extension denoting the application in which the file was created.
Originating Path	File path of the file as it resided in its original environment.
Production Link	Relative file path to production media of submitted native files. Example: FTC-001\NATIVE\001\FTC-00003090.xls.
Hash	The Secure Hash Algorithm (SHA) value for the original native file.

- (iv) Submit all other electronic documents other than those described in subpart (a)(i) in image format accompanied by extracted text and the following metadata and information:

Metadata/Document Information	Description
Beginning Reference Number	The beginning Reference Number of the document.
Ending Reference Number	The last Reference Number of the document.
Custodian	The name of the original custodian of the file.
Modified Date	The date the file was last changed and saved.
Modified Time	The time the file was last changed and saved.

Filename with extension	The name of the file including the extension denoting the application in which the file was created.
Production Link	Relative file path to production media of submitted native files. Example: FTC-001\NATIVE\001\FTC-00003090.xls.
Hash	The Secure Hash Algorithm (SHA) value for the original native file.

- (v) Submit documents stored in hard copy in image format accomplished by OCR with the following information:

Metadata/Document Information	Description
Beginning Reference Number	The beginning Reference Number of the document.
Ending Reference Number	The last Reference Number of the document.
Custodian	The name of the original custodian of the file.

- (vi) Submit redacted documents in PDF format accompanied by OCR with the metadata and information required by relevant document type in subparts (a)(i) through (a)(v) above. For example, if the redacted file was originally an attachment to an email, provide the metadata and information specified in subpart (a)(iii) above. Additionally, please provide a basis for each privilege claim as detailed in Instruction D.2.
- (b) Submit data compilations in electronic format, specifically Microsoft Excel spreadsheets or delimited text formats, with all underlying data un-redacted and all underlying formulas and algorithms intact.
- (c) If the Firm intends to utilize any de-duplication or email threading software or services when collecting or reviewing information that is stored in the Company's computer systems or electronic storage media, or if the Firm's computer systems contain or utilize such software, the Firm must contact the Commission to determine, with the assistance of the appropriate Commission representative, whether and in what manner the Firm may use such software or services when producing materials in response to this Order.
- (d) Produce electronic file and image submissions as follows:

- (i) For productions over 10 gigabytes, use hard disk drives, formatted in Microsoft Windows-compatible, uncompressed data in USB 2.0 or 3.0 external enclosure;
- (ii) For productions under 10 gigabytes, CD-R CD-ROM optical disks, DVD-ROM optical disks for Windows-compatible personal computers, and USB 2.0 Flash Drives are acceptable storage formats; and
- (iii) All documents produced in electronic format shall be scanned for and free of viruses prior to submission. The Commission will return any infected media for replacement, which may affect the timing of the Firm's compliance with this Order.
- (iv) Encryption of productions using NIST FIPS-Compliant cryptographic hardware or software modules, with passwords sent under separate cover, is strongly encouraged.
- (e) Each production shall be submitted with a transmittal letter that includes the FTC matter number; production volume name; encryption method/software used; passwords for any password protected files; total number of documents; and a list of load file fields in the order in which they are organized in the load file.

2. Privileged Material

(a) Privilege Log

- (i) If any documents are withheld from production based on a claim of privilege, provide a statement of the claim of privilege and all facts relied upon in support thereof, in the form of a log that includes each document's authors, addressees, date, a description of each document, and all recipients of the original and any copies.
- (ii) Attachments to a document should be identified as such and entered separately on the log.
- (iii) For each author, addressee, and recipient, state the person's full name, title, and employer or firm, and denote all attorneys with an asterisk.
- (iv) The description of the subject matter shall describe the nature of each document in a manner that, though not revealing information itself privileged, provides sufficiently detailed information to enable Commission staff, the Commission, or a court to assess the applicability of the privilege claimed.

- (v) For each document withheld under a claim that it constitutes or contains attorney work product, also state whether the company asserts that the document was prepared in anticipation of litigation or for trial and, if so, identify the anticipated litigation or trial upon which the assertion is based.
- (vi) Submit all non-privileged portions of any responsive document (including non-privileged or redactable attachments) for which a claim of privilege is asserted (except where the only nonprivileged information has already been produced in response to this instruction), noting where redactions in the document have been made. On the log, list the Reference Number of the non-privileged portions of such responsive documents.

3. All documents responsive to this Order:

- (a) Shall be produced in complete form, unredacted unless privileged, and in the order in which they appear in the Firm's files;
- (b) Shall be marked on each page with corporate identification and consecutive document control numbers when produced in image format;
- (c) Shall be produced in color where necessary to interpret the document (if the coloring of any document communicates any substantive information, or if black-and-white photocopying or conversion to TIFF format of any document (e.g., a chart or graph), makes any substantive information contained in the document unintelligible, the Firm must submit the original document, a like-colored photocopy, or a JPEG format image);
- (d) Shall be accompanied by an affidavit of an officer of the Firm stating that the copies are true, correct, and complete copies of the original documents; and
- (e) Shall be accompanied by an index that identifies (i) the name of each person from whom responsive documents are submitted; and (ii) the corresponding consecutive document control numbers(s) used to identify that person's documents. The Commission representative will provide a sample index upon request.

APPENDIX B

Certification

This Special Report, together with any and all appendices and attachments thereto, was prepared and assembled under my supervision in accordance with instructions issued by the Federal Trade Commission in its Special Orders for the Patent Assertion Entity Study. Subject to the recognition that, where so indicated, reasonable estimates have been made because books and records do not provide the required information, the information is, to the best of my knowledge, true, correct, and complete. Where copies rather than original documents have been submitted, the copies are true, correct, and complete.

Type or Print Name and Title

Type or Print Firm Name and Address

Type or Print Phone Number and Email Address

(Signature)

Subscribed and sworn to before me at the City of _____.

State of _____, this, _____ day of _____, 201____.

(Notary Public)

My Commission Expires: _____

APPENDIX E: SUPPORTING STATEMENT FOR A PAPERWORK REDUCTION ACT SUBMISSION TO OMB, FTC STUDY OF PATENT ASSERTION ENTITIES, PART A

**Supporting Statement for a Paperwork Reduction Act
Submission to OMB
FTC Study of Patent Assertion Entities**

The Federal Trade Commission (“Commission” or “FTC”) proposes to collect information about the organization, structure, economic relationships, and activity of Patent Assertion Entities (“PAEs”), including their acquisition, assertion, litigation, and licensing practices. The Commission will seek the information necessary to prepare this analysis through compulsory process under Section 6(b) of the FTC Act, 15 U.S.C. § 46(b) (“Section 6(b)").¹

PART A – JUSTIFICATION

1. Necessity for Information Collection

PAEs² are firms that purchase patents and then seek to generate revenue by asserting them against, and securing licenses from, persons who are already practicing the patented technology.

Currently, the public record of PAE activity is based on publicly available litigation data. PAE activity, however, encompasses a wide range of non-public behavior related to acquisition, assertion, and licensing practices, together with issues related to the organization and economic relationships of PAEs. Data that would permit an analysis of these aspects of PAEs is not available through the public record or from any single private source. The proposed collection of largely non-public information is necessary, therefore, to facilitate a better understanding of the operation and competitive effects of PAEs.

Members of Congress have expressed their support for the FTC’s proposed study. Urging the Commission, “to address the abusive practices of patent assertion entities (PAEs) that are a drag on innovation, competition, and our economy,” Senator Amy Klobuchar has stated that she “appreciate[s] Chairwoman Ramirez’s intention to ask the full Commission to commence a study under Section 6(b) of the Federal Trade Commission (FTC Act).”³ Representative Lipinski

¹ Section 6(b) of the FTC Act empowers the Commission to require the filing of “annual or special ... reports or answers in writing to specific questions” in order to obtain information about “the organization, business, conduct, practices, management, and relation to other corporations, partnerships, and individuals” of the entities to whom the inquiry is addressed.

² The Commission distinguishes PAEs from other non-practicing entities or NPEs that primarily seek to develop and transfer technology, such as universities, research entities and design firms. FED. TRADE COMM’N, THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION, 8 n.5 (2011), *available at* <http://www.ftc.gov/os/2011/03/110307patentreport.pdf>.

³ Letter from Senator Amy Klobuchar to The Honorable Edith Ramirez, Chairwoman, The Honorable Julie Brill, Commissioner, The Honorable Maureen K. Ohlhausen, Commissioner, and The Honorable Joshua D. Wright, Commissioner (June 24, 2013).

“strongly urge[s] the FTC to follow through with [a Section 6(b) study of PAE activity],”⁴ and Representative Murphy “looks forward to reviewing the results of [the FTC’s] inquiry.”⁵

PAE activity is a growing issue for the United States’ economy. For example, last June, the Executive Office of the President reported that the number of “suits brought by PAEs have tripled in just the last two years, rising from 29 percent of all infringement suits to 62 percent of all infringement suits,” and this activity may have “a negative impact on innovation and economic growth.”⁶ In February of this year, the President renewed his call for legislation to combat abusive PAE practices,⁷ and several bills pending in Congress address reforms directed toward PAE activity.⁸

The Commission has studied PAE activity for several years, and its research points to the need for an empirical record covering non-public PAE activity. The Commission first discussed the rise of the PAE business model in its 2011 Report, “The Evolving IP Marketplace: Aligning Patent Notice and Remedies with Competition.”⁹ In that report, the Commission defined a PAE as a firm with a business model focused primarily on purchasing and asserting patents, typically against operating companies with products currently on the market. In addition, on December 10, 2012, the Commission and the Antitrust Division of the United States Department of Justice (DOJ) jointly sponsored a workshop to explore the claimed harms and efficiencies of PAE activity and the impact of PAE activity on innovation and competition more broadly.¹⁰

Workshop panelists and commenters associated with the 2011 Report and the 2012 workshop provided anecdotal evidence of potential harms and efficiencies of PAE activity. These participants stressed the lack of comprehensive empirical evidence, and urged the Commission to use its Section 6(b) authority to collect information on PAE acquisition, litigation, assertion, and

⁴ Letter from Representative Daniel Lipinski to The Honorable Edith Ramirez, Chairwoman (June 25, 2013).

⁵ *Subcomm. on Oversight and Investigations Hearing on “The Impact of Patent Assertion Entities on Innovation and the Economy”* 113rd Cong. 1 (2013).

⁶ EXECUTIVE OFFICE OF THE PRESIDENT, PATENT ASSERTION AND U.S. INNOVATION at 1-2 (2013), *available at* http://www.whitehouse.gov/sites/default/files/docs/patent_report.pdf.

⁷ Press Release, Office of the Press Secretary, FACT SHEET-Executive Actions: Answering the President’s Call to Strengthen Our Patent System and Foster Innovation (FEB. 20, 2014), *available at* <http://www.whitehouse.gov/the-press-office/2014/02/20/fact-sheet-executive-actions-answering-president-s-call-strengthen-our-p>.

⁸ *See, e.g.* H.R. 3309, 113 Cong. (2013); S. 1720, 113 Cong. (2013). The proposed 6(b) study has been cited as a potential resource to be considered in connection with pending reform legislation. *Subcomm. On Oversight and Investigations Hearing on “The Impact of Patent Assertion Entities on Innovation and the Economy”* 113rd Cong. 1 (2013) (statement of Rep. Murphy) (“we look forward to reviewing the results of this [6(b)] inquiry and in the meantime will continue to further our understanding of such practices.”).

⁹ FED. TRADE COMM’N, THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION (Mar. 2011), (“2011 IP Report”), *available at* <http://www.ftc.gov/os/2011/03/110307patentreport.pdf>.

¹⁰ *See* Patent Assertion Entity Activities Workshop, Fed. Trade Comm’n, <http://www.ftc.gov/opp/workshops/pae/>.

licensing practices. Respondents to the Commission's first Federal Register Notice for this study¹¹ likewise stressed the need for Commission research in this area.

The Government Accountability Office (GAO) has also recognized deficiencies in the existing record of non-public PAC activity. As part of the America Invents Act,¹² Congress directed GAO to study the costs, benefits, and economic impact of PAE litigation, and to make policy recommendations. GAO issued its report on August 22, 2013.¹³ It found that over the period 2007 to 2011, the share of all patent lawsuits accounted for by PAEs rose from 17 percent to 24 percent and that suits by PAEs included about twice as many defendants as suits by manufacturing companies.¹⁴ GAO, however, emphasized several data deficiencies that limited its ability to examine the issues identified by Congress. First, GAO reported that patent assertions frequently do not result in litigation, which is publicly observable, and that it could not obtain reliable data on such assertions.¹⁵ Second, GAO could not collect information on litigation costs from court records or the sample data, nor obtain information on the settlements that resolve most cases.¹⁶

Responding to these requests, and recognizing its own role in competition policy and advocacy, the Commission proposes a Section 6(b) study that will provide a better understanding of the organizational structure and economic relationships of PAEs, as well as their activity and associated costs and benefits.

2. How the Data Will Be Used

The Commission will use the study to publish a report describing non-public PAE activity that would otherwise not be available. The proposed study has two components: (1) a case study of 25 PAEs reflecting different types of PAE business models; and (2) a case study comparing patent assertion by manufacturing firms and non-practicing entities ("NPEs")¹⁷ in the wireless chipset industry.

¹¹ See Agency Information Collection Activities; Proposed Collection; Comment Request, 78 Fed. Reg. 61,352 (Oct. 3, 2013).

¹² Pub. L. No. 112-29 § 34 (2011).

¹³ U.S. GOV'T ACCOUNTABILITY OFFICE, ASSESSING FACTORS THAT AFFECT PATENT INFRINGEMENT LITIGATION COULD HELP IMPROVE PATENT QUALITY (2013) at 17, available at <http://www.gao.gov/products/GAO-13-465>. The GAO study used different terminology to describe patent assertion activity, referring to both NPEs and "patent monetization entities," defined as companies that "buy patents from others for the purpose of asserting them for profit." *Id.* at 2.

¹⁴ *Id.* at 118.

¹⁵ *Id.* at 26-27, 35.

¹⁶ *Id.* at 25-26, see also Sara Jeruss, Robin Feldman & Joshua Walker, *The America Invents Act 500: Effects of Patent Monetization Entities on US Litigation*, 11 DUKE TECH. L. REV. 357, 361 (2012) ("[F]or many years, discussions about non-practicing entities have featured ample speculation, but lacked empirical data.").

¹⁷ NPEs are patent owners who primarily seek to develop and transfer technology. This differs from PAEs, whose business model focuses primarily on purchasing and asserting patents. See 2011 IP Report at 8, n.5.

The proposed case studies will provide policymakers with a far better understanding of PAE activity. The Commission intends to prepare both a descriptive summary of its findings, explaining PAE business strategy in greater detail than is currently available, as well as a quantitative summary, describing the practices of PAEs. While the findings of these case studies will not be generalizable to the universe of all PAE activity, the results will provide a uniquely valuable and highly useful view of activity that is not currently available through the public record.

The proposed information requests cover, among other things, information regarding: (1) how PAEs are organized; (2) what types of patents PAEs hold, and how they organize their holdings; (3) how PAEs acquire patents; (4) the strategies PAEs employ to assert their patents and secure licenses, and the characteristics of the resulting agreements, (5) costs for and revenues from PAE assertion activity.

How are PAEs organized? The Commission intends to gather data regarding the corporate structure and legal organization of PAEs, including the identity of their parent, subsidiary, and related firms. The Commission will use this data to understand how PAEs are organized and why they might choose different forms. For example, there is evidence that some PAEs assert their patent holdings through shell companies, which can increase the costs of negotiating licenses (transaction costs) for technology adopters and frustrate their ability to negotiate global settlements that would cover a broader range of patents.¹⁸ There is also some evidence that a PAE with legal or economic ties to a manufacturing firm may have incentives to assert patents against the rivals of the manufacturer (sometimes referred to as “privateering”). Because PAEs do not face the same risk of countersuit as manufacturers, privateering may increase the costs of doing business for some competitors, and burden competition in the targeted markets. The nature and extent of these relationships, as well as the potential to change market dynamics, however, is not well understood. The data the Commission seeks on PAE legal structure will provide a more robust picture of PAEs as business organizations, which is relevant for understanding the competitive implications of PAE activity.¹⁹

What types of patents do PAEs hold, and how do they organize their holdings? The study will collect data regarding PAE patent holdings, including the characteristics of PAE patent portfolios. To reduce the burden on respondents of collecting this information, the Commission has worked with the United States Patent and Trademark Office (USPTO) to collect USPTO’s publicly available data on patent holdings. The Commission will use this data to

¹⁸ See, e.g., EXECUTIVE OFFICE OF THE PRESIDENT, PATENT ASSERTION AND U.S. INNOVATION at 4 (2013) (noting that it is “generally seen” that PAEs “may hide their identity by creating numerous shell companies and requiring those who settle to sign non-disclosure agreements, making it difficult for defendants to form common defensive strategies (for example, by sharing legal fees rather than settling individually).” See also Feldman at 4.

¹⁹ See Chairwoman Edith Ramirez, Competition Law & Patent Assertion Entities: What Antitrust Enforcers Can Do, Opening Remarks at Computer & Communications Industry Association and American Antitrust Institute Program at 9 (June 20, 2013) (“The assertion of patent rights by a PAE may also raise antitrust concerns, especially if the PAE is effectively acting as a clandestine surrogate for competitors ... But hybrid PAE activities may fall within the scope of antitrust enforcement where there is evidence of harm to competition and consumers.”)

develop a better understanding of the types of patents held and asserted by PAEs, which will inform a number of policy issues.

The Commission also intends to use this data to determine whether PAEs employ strategies in patent acquisition that may have an adverse competitive impact. There have been some reports that PAEs tend to acquire late-term or low-quality patents.²⁰ Assembling portfolios of substitute patents may also raise competition concerns.²¹ Collecting data about PAE patent portfolio characteristics will help shed light on the extent to which these practices occur, the strategies they reflect, and the impact they may have on competition.

The proposed requests also call for information regarding all commitments made to Standard Setting Organizations. Patent holders that participate in the standard-setting process often make commitments to Standard Setting Organizations to license their patents to third parties to encourage implementation of a standard that incorporates the patents. Some have expressed concern that PAEs could attempt to evade that commitment by later transferring these encumbered patents to a new entity.²² The Commission intends to observe the extent to which this may occur in practice.

How do PAEs acquire patents? All of the various kinds of PAEs share a common characteristic: they do not themselves engage in research and development activities to generate the patents they own; they acquire patents from third parties. The Commission intends to investigate how PAEs acquire patents and, in particular, their economic relationships with inventors. Very little is known about the relationships between PAEs, the previous owners of patents acquired by PAEs, and the entities that finance PAEs' purchases of patents. Some have argued that PAEs can provide an otherwise unavailable opportunity for inventors, often individuals or small businesses, to generate revenues and profits from their patents by serving as a cost-effective means of licensing them more widely. If that is the case, PAEs might help to promote innovation by enhancing the economic incentives of inventors to invent. The proposed information requests will show whether this claim is borne out in practice among the PAEs in the case study, and whether PAE activity has benefitted the relevant inventors.²³

²⁰ See, e.g., EXECUTIVE OFFICE OF THE PRESIDENT, PATENT ASSERTION AND U.S. INNOVATION at 4 (2013) (noting that it is "generally seen" that PAEs "acquire patents whose claim boundaries are unclear, and then (with little specific evidence of infringement) ask many companies at once for moderate license fees, assuming that some will settle instead of risking a costly and uncertain trial.").

²¹ Ramirez, *supra* note 19 at 9 ("With respect to PAEs, antitrust concerns may arise with respect to their formation – the assembly of a patent portfolio through one or more acquisitions – or the assertion of a portfolio once assembled. Portfolio acquisitions that combine substitute patents, for example, may raise the risk of harming competition.")

²² See, e.g., Verizon Comment (Verizon) at 2. Public comments responding to the FTC's October 3, 2013 Federal Register Notice (78 Fed. Reg. 61,352) announcing the study are available at <http://www.ftc.gov/policy/public-comments/initiative-501>.

²³ Ramirez, *supra* note 19, at 7 ("On the benefits side of the equation, we know little more today than we did in 2011. One recent widely cited study claims PAE's return approximately 25% of the costs imposed on defendants back to inventors. ... Thus, the limited evidence we have today tends to support the Commission's concern that PAEs may do more to distort than improve incentives to invent."); Commissioner Joshua D. Wright, What Role Should Antitrust Play in Regulating the Activities of Patent Assertion Entities?, Remarks at Dechert Client Annual

What strategies do PAEs employ to assert their patents and secure licenses, and what are the characteristics of the resulting agreements? Patent assertion is a key aspect of PAE activity. As noted above, the limited empirical research of PAE activity to date is based on publicly available litigation data, which does not include any information about licenses, even when secured through settlements of litigation. The Commission’s proposed requests will gather information about both licenses secured through non-litigation assertion activity and licenses secured through litigation.

The principal way PAEs monetize their patents is by licensing firms allegedly using the patented technology. PAEs may secure licenses with or without commencing litigation. However, while the filing of an infringement claim is public, the majority of settlement activity is not. Even if settlement follows the filing of a lawsuit, the terms of patent settlements rarely are public. The Commission also intends to request that PAEs submit copies of “demand letters” they have sent during assertion efforts to understand more fully the strategies PAEs employ when asserting patents. The collection of currently unavailable information on settlement characteristics and assertion strategies will provide a more thorough basis for any policy analysis of the likely impact of PAE activity on competition and innovation.

What does assertion activity cost PAEs and what do PAEs earn through assertion activity? The study will reveal PAEs’ costs and revenues for acquiring and asserting patents, providing a deeper understanding of the economics of PAE activity within the study sample. Because PAEs specialize in patent assertion, including litigation, they may be able to assert patents at lower costs than the original inventors. Some market participants have claimed that PAEs have lower discovery costs than operating companies, and that this lower cost allows them to bargain more effectively. The data will provide insight into whether, as some commentators claim, the PAE business model enjoys lower costs due to specialization, which may be beneficial to competition.²⁴

The proposed information requests also ask whether the responding firms have ever assigned a value to any of their patents. There is some evidence to suggest that PAEs demand licensing fees that are significantly greater than the acquisition costs of the patents.²⁵ The study will examine the difference between patent acquisition costs and licensing fees, and endeavor to understand the factors that allow PAEs to extract greater value from the patents they acquire, and how these features of the PAE business model are likely to impact competition.

Antitrust Spring Seminar at 9 (April 17, 2013) (“the key issue regarding PAEs from an antitrust perspective, and for which we have very little evidence, is the extent to which PAE activity contributes to innovation. To answer that we need to know ... What share of these costs goes to inventors (or patentees)? ... To what extent is this added compensation to inventors stimulating innovation?”).

²⁴ See Ramirez, *supra* note 19, at 3 (“Rewarding genuine invention is good for competition and consumers. PAEs can serve that goal by reducing the enforcement hurdles facing small inventors and start-ups ... PAEs may also increase liquidity in the secondary market for patents, which can drive funding to R&D); Wright, *supra* note 22, at 9 (“In short, PAEs hold themselves out as intermediaries between inventors who engender patents and technology-driven practicing entities. The critical question is, of course, to what extent these benefits increase innovation or otherwise enhance consumer welfare.”)

²⁵ See Microsoft Corp. Comment (Microsoft) at 2; Apple, Inc. Comment (Apple) at 3.

In addition, the proposed information requests will examine how the costs and revenue associated with PAE activity are distributed among third parties. Understanding how the risks of gain and loss, as well as costs and revenues, are shared between the PAEs and interested third parties is essential to understanding whether PAEs may foster innovation or have the potential to affect competition adversely. For example, this information may shed light on whether PAE activity has any potential to affect the incentive to innovate because it provides returns to inventors.

3. Information Technology

Improved information technology may assist in gathering and producing this information. Consistent with the aims of the Government Paperwork Elimination Act, 44 U.S.C. § 3504 note, the Commission will allow the submission of information through electronic or automated collection techniques. It will provide all study subjects with an electronic template in which to enter much of the requested information. The template should significantly reduce the burden of responding to the requests. It will also facilitate the Commission's analysis of the data collected, permitting it to more easily collect, compare, and contrast responsive information submitted by different parties. In addition, the Commission will use database software to compile information and further facilitate its review and analysis.

4. Efforts to Identify Duplication/Availability of Similar Information

Currently, there is no sufficiently comprehensive and public source of information that would allow the Commission to otherwise achieve the goals of the proposed study. Existing studies of PAE activity rely on publicly available patent and litigation information and note the limitations of the available data. A significant portion of PAE activity is conducted through communications and agreements that are confidential or not publicly available and often are subject to non-disclosure agreements. In addition, there is no publicly available source for cost and revenue information, including the details of assertion activity, settlements, and licensing.

5. Efforts to Minimize the Burden on Small Organizations

Because the requests focus on portfolio and assertion information, the burden on small organizations that hold relatively few patents and engage in limited assertion activity will be minimal. The Commission has made efforts to ensure that the burden imposed by the requests is largely proportional to each study subject's (1) patent holdings, and (2) volume of patent acquisition and assertion activity. In addition, because patent acquisition and assertion is the primary business activity of most PAEs, the information necessary to respond to the requests should be readily accessible to all responding firms. Therefore, the Commission expects that the requests will not have a significant impact on a substantial number of small entities.

6. Consequences to Federal Program and Policy Activities and Obstacles to Reducing Burden

If the information is not collected, the Commission will not have the data necessary to prepare a well-documented study describing non-public PAE activity that can inform future Commission policy, as well as the policymaking of other interested federal agencies that address

competition, innovation, and intellectual property issues. For example, as discussed above, this lack of empirical data has already complicated GAO's attempts to study PAE activity.

The Commission believes that the proposed study will enable it to provide a more comprehensive descriptive picture of PAE structure, organization, acquisition, and assertion behavior, which will assist many organizations and individuals to understand more fully the scope of PAE activity in the economy. This one-time collection will not create a repetitive burden for respondents. As described in the responses to the comments, the Commission has endeavored to minimize the burden of the information requests by carefully limiting them to the information necessary to complete the study and by providing a template to assist in the organization and submission of the data.

7. Circumstances Requiring Collection Inconsistent with Guidelines

The collection of information in the proposed survey is consistent with all applicable guidelines contained in 5 C.F.R. § 1320.5(d)(2).

8. Public Comments/Consultation Outside the Agency and Actions Taken

As required by 5 C.F.R. § 1320.8(d), the Commission published a notice seeking public comment on the proposed collections of information, and, consistent with 5 C.F.R. § 1320.10(a) is doing so again contemporaneous with this submission. To maximize transparency, and support robust commenting, the Commission published all of the questions that it proposed to direct to respondents. The Commission also extended the comment deadline in response to requests for additional time to respond.

The Commission received 70 comments on the proposed information collection requests. Responses came from a wide variety of commenters including Intellectual Ventures, Acacia Research Corporation, Microsoft, Intel, Qualcomm, Apple, Nokia and Verizon. A number of professional and bar associations, such as the Intellectual Property Owners Association (IPO), the American Antitrust Institute (AAI), and the American Intellectual Property Law Association (AIPLA), also submitted comments, together with trade associations representing both small and large businesses.²⁶ In addition, the Commission received comments from a number of law professors and attorneys general,²⁷ individual inventors, attorneys, and interested members of the public.²⁸

Almost all commenters recognized the lack of existing public information and expressed support for a study of PAE activity. Some commenters proposed ways to increase the utility, or

²⁶ These include the National Restaurant Association, the Application Developers Alliance, the Food Marketing Institute, the Consumer Electronics Association, the Computer & Communications Industry Association, the Direct Marketing Association, and the Software & Information Industry Association.

²⁷ This includes Professors Michael Risch (Villanova University), Robin Feldman (University of California, Hastings) and Jorge Contreras (American University), as well as Kamala Harris, Attorney General of California and the National Association of Attorneys General, joined by the Attorneys General of 43 states.

²⁸ See, e.g., comments of Philip Conrad, Todd Glassey and William Redmann.

decrease the burden, of responding to requests. Most comments stated that the proposed study will have practical utility, that it is necessary for the proper performance of the Commission's functions, or otherwise stressed the importance and value of the study. As discussed below, the Commission has incorporated many of the suggestions by the commenters into its revised study.

A. Practical Utility of the Proposed Study/Necessity for the Proper Performance of the Commission's Functions

Comment: The FTC has a unique dual mission that encompasses both consumer protection and competition concerns. In addition to its enforcement authority, which covers both “unfair or deceptive acts and practices” and “unfair methods of competition,” Congress also empowered the Commission to use compulsory process to: “gather and compile information concerning, and to investigate from time to time the organization, business, conduct, practices, and management of any person, partnership, or corporation engaged in or whose business affects commerce....” 15 U.S.C. § 46(a). The Commission judiciously uses its study authority to examine and better understand industries and practices that are likely to affect competition and consumers.

Although the particular mechanisms of PAE operation are not well understood, the Commission's past studies, more recent scholarship, and our 2012 Workshop all suggest that PAE activity may be affecting competition, innovation, and consumers in a variety of ways that are not fully understood at this time.

Almost all commenters on the first Federal Register Notice supported the Commission's study of PAE activity. Intellectual Ventures noted that “a well-designed and executed 6(b) study would provide useful insights into the effect of PAE activity.”²⁹ Acacia Research Corporation noted that it “welcomes the FTC's study of this important issue.”³⁰ Microsoft similarly noted that it “supports the FTC's efforts to gather additional information to both supplement current knowledge of PAEs and to better understand the costs and benefits of their behavior.”³¹ The Stop Patent Abuse Now (SPAN) Coalition stated that it “strongly supports the Commission's decision to conduct a 6(b) study of patent trolls.”³² Likewise, AIPLA explained that there “is an urgent need for more information to ensure that policy decisions are appropriately grounded.”³³ The United States Telecom Association (USTelecom) noted that “the opaque nature of the PAE business model makes the FTC's inquiry into their activities both timely and imperative.”³⁴

Commenters agreed that data generated by the proposed requests will illuminate critical aspects of PAE activity and have practical utility. Professor Robin Feldman noted that the

²⁹ Intellectual Ventures at 1.

³⁰ Acacia Research Corp. Comment (Acacia) at 3.

³¹ Microsoft at 1.

³² SPAN Coalition Comment (SPAN) at 1.

³³ AIPLA Comment (AIPLA) at 2.

³⁴ USTelecom Comment (US Telecom) at 3.

proposed requests “are a rational and reasonable approach to understanding a complex problem.”³⁵ The Computer & Communications Industry Association (CCIA) noted that “the set of questions that the FTC has prepared are thorough and properly directed toward information that should shed light on the heretofore-mysterious PAE business model.”³⁶ Red Hat noted that, “as put forward by the FTC, the proposed 6(b) industry study will add significantly to the existing literature and evidence on PAE behavior.”³⁷ The Consumer Electronics Association (CEA) noted that the proposed requests “are necessarily broad and will illuminate the many dimensions of PAEs’ conduct in a way that no other entity is capable.”³⁸ The National Association of Attorneys General expressed that “we believe the merits of the proposed information request are beyond question.”³⁹ Kellogg Huber Hansen noted that the proposed requests “are necessary to determine the net effect of PAE activity on innovation.”⁴⁰ Verizon noted that “developing the full scope of the information requested in the FTC’s draft questions is likely to enable important research into the effects of PAE activity.”⁴¹ As noted in more detail below, commenters also made a number of proposals to increase the utility of specific requests, which we have taken into account in revising the requests.

In addition, several respondents recognized that the Commission’s use of its 6(b) authority will address the limitations of previous studies that relied upon publicly available litigation data. The National Retail Federation noted that the Commission’s 6(b) authority makes the study “a unique opportunity to gain a complete picture of patent troll activity through the collection of nonpublic information including licensing agreements, patent acquisition information, and data on PAEs’ costs and revenue.”⁴² The Software & Information Industry Association (SIIA) noted that previous “studies have focused primarily on publicly available litigation data,” and that “certain licensing agreements, patent acquisition information, and cost and revenue data that was not available to researchers in prior studies would be potentially available to the FTC.”⁴³ Professor Feldman noted that “lack of information is particularly problematic for the 90% of patent demand activity that occurs outside the courthouse.”⁴⁴

³⁵ Feldman at 5.

³⁶ CCIA Comment (CCIA) at 2.

³⁷ Red Hat, Inc. Comment (Red Hat) at 1.

³⁸ CEA Comment (CEA) at 4.

³⁹ National Association of Attorneys General Comment, joined by 43 State Attorneys General (NAAG) at 2.

⁴⁰ Kellogg Huber Hansen Todd Evans & Figel, PLLC Comment, on behalf of Adobe Systems, Inc., Canon U.S.A., Inc., Cisco Systems, Inc., Dell Inc., Ford Motor Company, Google, Inc., Hewlett-Packard Company, Limelight Networks, Inc., Rackspace US, Inc., and SAP Americas, Inc. (Kellogg Huber Hansen) at 6.

⁴¹ Verizon Comment (Verizon) at 1.

⁴² National Retail Federation Comment (NRF) at 1. *See also* Public Knowledge, the Electronic Frontier Foundation, and Engine Advocacy Comment (Public Knowledge) at 1 (“the Section 6(b) study would generate substantial empirical data particularly useful not only to the FTC for carrying out its mission of protecting consumers, but also to businesses, researchers, and policymakers.”)

⁴³ SIIA Comment (SIIA) at 2.

⁴⁴ Feldman at 3.

Professor Contreras noted that the study “is likely to inform the policy debate concerning this contentious topic, and should become a valuable resource for industry, scholars, and policymakers.”⁴⁵ The Internet Commerce Coalition noted that “an FTC investigation is the only realistic way to obtain information” about these PAEs.⁴⁶

Many commenters believed that that any burden imposed by the proposed requests is justified. Intel said that “any burden that the Commission’s information requests will impose on PAEs is insignificant in relation to the burdens that PAEs impose on the economy...”⁴⁷ Similarly, Kellogg Huber Hansen, writing on behalf of a number of technology companies, noted that “the cost to the PAEs of complying with the information requests is small compared to the burden PAEs impose on the economy.”⁴⁸ Public Knowledge, the Electronic Frontier Foundation, and Engine Advocacy noted that “the public value of the information to be retrieved vastly outweighs the minimal burden of producing information on the part of PAEs and other entities.”⁴⁹ Professor Feldman noted that that the requests in the “proposed inquiry are not unduly burdensome and are reasonably related to finding essential information.”⁵⁰ The Retail Industry Leaders Association similarly noted that “the proposed Section 6(b) request strikes the appropriate balance between the benefits of the information to be obtained ... and the potential burdens imposed.”⁵¹ The SAS Institute noted that the study “is well worth the burdens it may impose.”⁵²

Response: The proposed study directly supports the FTC’s mission critically to examine industries and practices that affect the economy. It will aid the Commission, other agencies engaged in policymaking with respect to competition, innovation, and patents, as well as industry and researchers to gain a better understanding of the operation and potential effects of PAE activity. No other public agency is as well situated as the Commission to undertake the study, and many have urged the FTC to do so. As is more fully discussed, below, the Commission has addressed concerns expressed in the comments about the utility and burden of the proposed requests by modifying them in significant ways to sharpen their focus and reduce their likely burden.

B. Suggestions to Reduce Burden

As discussed more fully below, the Commission has seriously considered Commenters requests to reduce the burden of this study. For example, the Commission has: (1) simplified the

⁴⁵ Professor Jorge Contreras Comment (Contreras) at 1.

⁴⁶ ICC Comment (ICC) at 1.

⁴⁷ Intel Comment (Intel) at 3.

⁴⁸ Kellogg Huber Hansen at 1.

⁴⁹ Public Knowledge at 7.

⁵⁰ Feldman at 4.

⁵¹ Retail Industry Leaders Association Comment (RILA) at 1.

⁵² SAS Institute Inc., Limelight Networks Inc., VIZIO, Inc., Newegg, Inc., Citrix Systems, Inc., Xilinx, Inc., ABBYY USA Software House, Inc., and Altera Corporation Comment (SAS Institute, *et al.*) at 2.

study questions and removed questions that could lead to attorney-client privileged information; (2) narrowed the beginning of the study from January 1, 2008 to January 1, 2009; (3) clarified that the comparative case study focuses on the wireless chipset sector, not the broader wireless industry; (4) clarified that the comparative case study includes fewer questions directed towards manufacturing firms and NPEs; and (5) worked with the USPTO to remove questions directed towards publicly available information.

1. Document Requests Calling for “All Documents”

Comment: The Commission’s initial proposed requests called for “all documents” related to a number of topics, including patent acquisition, demands, and licensing. Several commenters expressed the concern that these requests were too broad. Intellectual Ventures noted that “such requests are overbroad, unduly burdensome, and perhaps most important, will not provide the Commission with the information needed to meet its goals.”⁵³ Qualcomm noted that such requests would call for information that “may be entirely irrelevant to the issues surrounding PAE activity.”⁵⁴

Some commenters proposed that the Commission reduce the scope of its requests.⁵⁵ InterDigital suggested that several document requests be revised to “require only high level presentations or ‘documents sufficient to show’ instead of ‘all documents.’”⁵⁶ Intellectual Ventures suggested that requests be limited to documents “such as board and investor presentations or regulatory disclosures that reflect the culmination and finalization of ideas that were considered, refined, and accepted or rejected, and facts and data that were accumulated and validated.”⁵⁷

Response: To avoid unnecessary burden while still collecting the information necessary to provide a robust study, the Commission has substantially reduced the scope of its document requests. In most instances, the Commission has replaced its requests for “all documents” with narrower requests tailored to specific types of documents. For example, the Commission replaced its request for “all documents Relating to the Firm’s Acquisitions” of patents with specific requests for “agreements... relating to any Acquisitions” as well as related Reports, limited to “studies, analyses, and reports which were prepared by or for any officer(s) or director(s) of a corporate entity ... or presented to any Person outside the Firm.”

2. Information Requests Calling for Additional Analysis

Comment: Some commenters expressed the concern that some of the initial proposed requests may call for the creation of factual or legal analyses that might not be in the possession

⁵³ Intellectual Ventures at 13.

⁵⁴ Qualcomm Comment (Qualcomm) at 7.

⁵⁵ Intellectual Ventures at 13-19; InterDigital at 11; Qualcomm at 8.

⁵⁶ InterDigital at 11.

⁵⁷ Intellectual Ventures at 14.

of a responding firm. Intellectual Ventures noted that several requests “require respondents to summarize the documents they produce.”⁵⁸ Nokia suggested that “where information will clearly be available from requested documents, recipients should not also be put to the additional burden and expense of setting out information abstracted from the documents to the FTC.”⁵⁹

Some comments expressed concern about proposed requests calling for the identification of specific patents subject to license agreements or licensing commitments. InterDigital noted that answering the proposed request calling for “whether the Firm has licensed the Patent to any Person(s),” would “entail legal analysis and opinion” because “many agreements do not list the licensed patents by number.”⁶⁰ The AIPLA similarly noted that “licensing commitments to Standard Setting Organizations are often made by a generic reference to all patents one owns which are essential,” and that “the requests related to standard setting organizations should be limited to patents specifically enumerated as essential.”⁶¹ InterDigital also noted that responding to requests drawn toward identifying patents in portfolios “would require a significant expenditure of time and money” because companies often do not “neatly segregate their patents into a list of defined portfolios.”⁶²

Other comments identified areas where document requests called for analyses that might not have been created in the ordinary course of business. The AIPLA noted that requests drawn toward portfolio valuations “presume that valuations are performed on patents, which is not necessarily the case,” and InterDigital suggested that the request be revised to “not require recipients to conduct any *de novo* valuations.”⁶³ Similarly, Nokia noted that proposed requests called for “effective royalty rates from license agreements that may not be generated or tracked by recipients,” and should be revised to “make it clear that recipients are not under any obligation to produce or develop information that does not already exist.”⁶⁴ The IPO noted that responding to the proposed request seeking “the cost of R&D related to each patent held by the company” would “often be nearly impossible for a single patent, much less thousands of them.”⁶⁵

Response: While the Commission is authorized to require creation of data necessary to respond to a 6(b) study, it revised a number of the proposed requests to address these concerns and reduce burden, while retaining the utility of the responses.

⁵⁸ *Id.* at 20.

⁵⁹ Nokia Comment (Nokia) at 3.

⁶⁰ InterDigital at 9. *See also* AIPLA at 3 (“The nature of some questions fails to recognize that licenses sometimes extend to one’s entire portfolio of patents.”).

⁶¹ AIPLA at 3; *see also* InterDigital at 8.

⁶² *Id.* at 9-10.

⁶³ *Id.* at 9-10; AIPLA Comment at 3.

⁶⁴ Nokia at 3. *See also* AIPLA at 3 (“Some information, such as royalty bases, might only be available from licensees.”).

⁶⁵ IPO at 2. *See also* AIPLA at 3 (“the requested details of the R&D relevant to each patent are not necessarily recorded and will frequently require considerable investigation on an invention-by-invention basis.”).

Some of the proposed requests for data regarding requested documents, such as the parties and products subject to license agreements, are necessary to organize data for analysis and comparison. The Commission has retained these in the revised request. However, the Commission refined and narrowed the definition of terms such as “License” and “Legal Right” to provide respondents with additional clarity and guidance regarding how to respond. Such data should be readily available to responding firms.

The Commission also incorporated the suggestions of a number of the other comments. It revised its request regarding patents declared to Standard Setting Organizations to require listing only specific patents when “specific patents have been identified as subject to a Licensing commitment.” Similarly, the revised request only requires the identification of patents in a patent portfolio “[when] the Firm identifies the Patent(s) included in the Patent Portfolio.”

Finally, the Commission replaced its request regarding the cost of research and development activity related to each patent with a request for any “studies, analyses, or reports” that “evaluate or analyze any research and development activities relating to any Patent.” Similarly, the Commission revised its request for the “Firm’s valuation of” patent portfolios to “whether the Firm has assigned a value to the Patent Portfolio.” The Commission revised its request regarding patent assertion to request documents that “evaluate or analyze the calculation of any payment Relating to the sale” of a patent, instead of calling for a description of how the payment is calculated.

3. Financial Data

Comment: Two commenters expressed concern regarding certain requests for financial data. Intellectual Ventures suggested that request for “all documents” related to financial data would be too broad, and asked that the request be limited to documents or data sufficient to show relevant financial information.⁶⁶ InterDigital similarly suggested that these document requests are redundant of other requests that call for cost and revenue data.⁶⁷ Two additional respondents noted that respondents may not track financial information at the level of detail sought in the requests.⁶⁸

Response: The Commission has eliminated the request for “all documents” relating to costs and revenue data. Instead, the requests ask for “documents sufficient to show” such data. In order to provide a useful basis for comparison, specific cost and revenue data is needed, so specific requests for detailed cost and revenue data have been retained.

4. Privileged Information

Comment: Two commenters expressed concern that certain requests could call for material potentially subject to confidentiality under the attorney-client privilege. InterDigital

⁶⁶ Intellectual Ventures at 19.

⁶⁷ InterDigital at 12.

⁶⁸ Nokia at 3; Qualcomm at 8.

noted that answering requests to identify whether patents are subject to a standard setting organization's licensing commitment "requires legal analysis" and that "such legal conclusions are privileged."⁶⁹ Nokia claimed that requests for "a firm's rationale for asserting patents" and "projected revenues or return on investment from patent assertions" may be privileged.⁷⁰ Nokia also noted that requests for "all documents" related to patent acquisition could call for privileged materials.⁷¹

Response: The Commission has amended its requests to minimize the need to collect or review potentially privileged materials. As noted above, it has revised requests in many circumstances where such requests may be interpreted to call for legal analysis. Further, in order to reduce the need to analyze or log documents for claims of privilege, the Commission revised many requests originally calling for "all documents" to call for only "Reports," defined as "studies, analyses, and reports which were prepared by or for any officer(s) or director(s) of the company ... or presented to any Person outside the Firm." This limitation should eliminate the need to collect and review many drafts or internal communications that could raise privilege issues. Despite these changes, the Commission expects that some privilege issues will arise because of the central role of attorneys in PAEs' acquisition, licensing, and litigation of patents. These issues will be handled on a case-by-case basis as needed.

C. Suggestions to Change Study Design

Comment: The Commission received a number of comments suggesting that it alter the design of the PAE study. For example, InterDigital suggested that the Commission "clarify that it is interested in the costs and benefits of PAE activity to *innovation and competition*."⁷² Microsoft suggested that "the study should more closely examine PAE practices that involve asserting patent(s) or patent portfolios for amounts far greater than the acquisition cost of those patents"⁷³ Apple suggested that the study "could attempt a full accounting of the economics that motivate PAEs," focusing on "(1) PAEs' valuations of, and methods of valuing, patents at the time of acquisition; (2) PAEs' royalty demands at the time of assertion; (3) PAEs' costs of asserting their patents; and (4) defendants' costs of defending against PAEs' assertions."⁷⁴ The AIPLA suggested focusing on "abusive practices during infringement litigation as well as demand notices from patent owners."⁷⁵ Intellectual Ventures suggested that the Commission limit its requests to those patents that have been specifically identified in litigation or a demand—not every patent in a recipient's portfolio.⁷⁶

⁶⁹ InterDigital at 8-9; *see also* IPO at 2.

⁷⁰ Nokia at 2.

⁷¹ *Id.*

⁷² InterDigital at 3.

⁷³ Microsoft at 2.

⁷⁴ Apple at 3.

⁷⁵ AIPLA at 2.

⁷⁶ Intellectual Ventures at 10-11.

Response: The Commission has narrowed requests to focus on relevant issues. Responding to public comments, the Commission also has clarified that the study includes two case studies, where the first is a descriptive study of PAE activity, and the second is a comparative study including activity in the wireless chipset sector. The FTC has also clarified the focus on the wireless chipset sector, rather than the wireless industry more generally. Finally, the Commission has revised the questions to focus on “yes/no” answers and qualitative information to allow the FTC to synthesize the data, as well as to reduce the burden on respondents.

Comment: Some comments addressed the number and/or type of study subjects. The California Attorney General suggested that the Commission “broaden the number of entities from which it collects information.”⁷⁷ Similarly, the National Association of Attorneys General suggested that the Commission “increase the number of PAEs, Manufacturing Firms, and NPEs to which the information request will be submitted.”⁷⁸ The Internet Commerce Coalition maintained that “the Number of Entities reviewed should be increased, as this is the first study of its kind in an area shrouded in considerable secrecy.”⁷⁹ A number of other commenters suggested that specific types of entities that should be included in the study: “owner-operators” that license or practice wireless patents;⁸⁰ “other participants in the secondary patent market;”⁸¹ practicing entities which have “stand-alone licensing subsidiaries or divisions;”⁸² and “parties that have sold or transferred a large number of patents to the PAEs being examined.”⁸³ Acacia suggested that inventors also be studied.⁸⁴

The Commission also received comments regarding the comparison of PAEs and Manufacturing Firms in the wireless communications sector. Kellogg Huber Hansen noted that “the Commission’s proposed study of manufacturing firms ... will provide a potentially useful benchmark for evaluating whether PAEs are an efficient means of rewarding patentees.”⁸⁵ Similarly, the SPAN Coalition noted that “the current structure of the study ... seems well-suited to evaluating many of the details of patent enforcement by patent trolls in [the wireless communication] sector,” but proposed “the addition of at least one additional category of patent” such as “web technology-related patents or wireless networking.”⁸⁶ Similarly, the Direct Marketing Association commented that it “would welcome a broadening of the study beyond the

⁷⁷ Kamala D. Harris, Attorney General of California Comment (California Attorney General) at 1.

⁷⁸ NAAG at 3.

⁷⁹ ICC at 2.

⁸⁰ Kellogg Huber Hansen at 20.

⁸¹ Microsoft at 28.

⁸² Intel at 15.

⁸³ AAI at 8.

⁸⁴ Acacia at 4.

⁸⁵ Kellogg Huber Hansen at 7.

⁸⁶ SPAN at 2.

wireless telecommunications sector.”⁸⁷ Verizon suggested broadening the study to “investigate the effects of PAEs on wireline communications services and other high-tech industries.”⁸⁸ Intellectual Ventures similarly noted that “the Commission should also expand its inquiry beyond operating companies in the wireless communications sector.”⁸⁹

The Commission received conflicting comments regarding the scope of requests sent to Manufacturing Firms: Microsoft suggested that “the information requests to Manufacturing Firms should ...be reconsidered and revised by narrowing their scope,” while Intellectual Ventures noted that “it is essential to obtain the same information about patent assertion activity in the same markets from both PAEs and non-PAEs.”⁹⁰

Response: As currently designed, the study will provide a comparative view of a variety of PAE business models, as well as a focused comparison of PAE activity to activity of non-PAEs in the wireless chipset sector. While commenters have suggested expanding the scope even further, focusing on the well-defined wireless chipset sector allows the Commission to balance the goals of and burden resulting from the study.

Comment: The Commission received comments on the time period covered by the initially proposed requests, which was from January 1, 2008 through the present. Several commenters stressed the importance of obtaining information for the entire proposed period. Verizon noted that “examining the entire time period covered by the draft questions is also important to discern trends.”⁹¹ The Computer and Communications Industry Association (CCIA) noted that “the time frame of five years is necessary to understand the evolution of the PAE industry.”⁹² The SPAN Coalition noted that “the time period of the study ... is necessary.”⁹³ In contrast, several commenters noted that the scope of information requests should be limited to January 2011 to the present in order to reduce the burden of the requests.⁹⁴

Response: The requests now seek information beginning January 1, 2009. The Commission believes that at least five years of data is necessary to understand trends in patent enforcement. Empirical research suggests that PAE activity has increased significantly, and it is necessary to have a sufficient dataset to understand this trend and the reasons behind it. As the CCIA noted, “PAE litigation has increased sharply in the last five years, but the causes of that

⁸⁷ Direct Marketing Association Comment Comment (DMA) at 2. *See also* ICC at 2 (“The narrower case study should by no means be limited to wireless as the effects of PAE activity are far, far broader than that.”).

⁸⁸ Verizon at 1.

⁸⁹ Intellectual Ventures at 8.

⁹⁰ *Id.* at 2; Microsoft at 2.

⁹¹ Verizon at 1.

⁹² CCIA at 2.

⁹³ SPAN at 1.

⁹⁴ Qualcomm at 8-9; InterDigital at 8. Acacia similarly suggested that the time period be limited to three years. *See* Acacia at 3.

increase are not well understood.”⁹⁵ Moreover, in 2011, the Leahy-Smith America Invents Act made several changes to the U.S. patent system. Collecting data before and after the Act’s passage, allows the Commission to study the impact of the Act on PAE activity.

D. Suggestions Regarding Requests for Company Information

Comment: Some of the comments related to the scope of requests for company information. Nokia noted that the request to identify all entities with an ownership interest in the firm could potentially call for an identification of all of its shareholders.⁹⁶ The AIPLA claimed that the company information requested would be “beyond the knowledge of clerical personnel or even mid-level management.”⁹⁷ Qualcomm also noted that the requests would call for an identification of patents invented by employees of the responding firm.⁹⁸

In contrast, several other commenters suggested adding more detailed questions regarding PAE organization, ownership, and structure. These commenters proposed questions to illuminate the extent to which investors exert control over the PAEs.⁹⁹ For example, while the proposed requests inquired about entities that shared in the revenues derived from PAE activity, Kellogg Huber Hansen suggested extending these requests to cover entities that share in the costs of the activity.¹⁰⁰ Davis Polk & Wardwell noted that the request “could be too narrow, because it applies traditional ownership rights among businesses to a sector that is known for its novel and opaque business arrangements.”¹⁰¹ Along these lines, commenters proposed extending the requests to include “both leading PAEs and the leading sources of patents for the selected PAEs,”¹⁰² PAEs’ “advisers,”¹⁰³ and lawyers, “organizers,” and “persons or entities that exercise any supervision or control over the PAE.”¹⁰⁴

Response: The Commission’s request about firm organization is critical because of the wide variety of business arrangements used by PAEs and the relative lack of knowledge of the details of these arrangements, which likely affect the economic incentives and hence the behavior and potential competitive impact of PAEs. The Commission has edited its requests to capture the range of PAE organizational structures, with the understanding that PAEs take many

⁹⁵ CCIA at 2.

⁹⁶ Nokia at 3-4 (“Using Nokia as an example, the request could be read to require Nokia to produce a list of every shareholder in the company and every management employee that receives a bonus or has other financial incentives that are any way tied to the profitability or financial performance of Nokia.”).

⁹⁷ AIPLA at 3.

⁹⁸ Qualcomm at 6.

⁹⁹ Kellogg Huber Hansen at 18; Verizon at 2.

¹⁰⁰ Kellogg Huber Hansen at 18-19.

¹⁰¹ Davis Polk & Wardwell LLP Comment (Davis Polk) at 4.

¹⁰² AAI at 9.

¹⁰³ Verizon at 2.

¹⁰⁴ Kellogg Huber Hansen at 18.

forms and that it is difficult to anticipate the different types of activity that the study will find, but has also taken steps to reduce the burden of these requests.

The Commission expects that ownership and organizational information will be readily available to most respondents. In order to reduce burden, however, the Commission has narrowed the scope of Firm owners called for in the requests. With respect to publicly traded companies, the requests now call only for shareholders who hold 5% or more of the equity in the respondent. Further, the Commission amended the requests to make clear that they do not encompass patents assigned by employees of the firm.

E. Suggestions to Increase Utility of Responses

1. Comments on Existing Requests

Comment: The initial requests focused on patents “held” by each respondent. Commenters suggested, however, that “held” could be read as limited to patents that are “owned” by respondents, and cautioned that such a limitation would limit the value of the study, because it would not encompass other, important legal rights in patents that might influence PAE activity. They requested, therefore, that the scope of the study be extended to include not only patents owned by respondents, but also patents for which a respondent possesses the right to license or enforce the patent.¹⁰⁵ The Internet Association expressed the concern that responding firms would evade requests by “interpreting ‘held’ to mean only those patents for which it possessed and owned all rights.”¹⁰⁶ Similarly, Verizon suggested that the definition of acquire be expanded to “obtain legal rights to license or enforce.”¹⁰⁷

Response: The Commission agrees that the information requests should extend to all forms of patent rights acquisition commonly used by PAEs, and understands that this may often involve not only the acquisition of a patent, but may also involve acquiring an exclusive license or other rights to enforce a patent. Accordingly, it has amended the requests to add a definition for the term “held,” which includes possessing a legal right in a patent, i.e. “any ownership interest in, an exclusive License to, or other rights adequate to License or enforce a Patent.”

2. Suggestions for Additional Requests

Comment: Some Commenters proposed specific additional questions regarding patent acquisition and holdings, demand letters, litigation, and licensing.

For example, Intel suggested that requests be expanded to cover certain agreements and arrangements related to “privateering” activities.¹⁰⁸ The Internet Association suggested that the

¹⁰⁵ Verizon at 2; Internet Association at 5; Kellogg Huber Hansen at 17.

¹⁰⁶ Internet Association at 5.

¹⁰⁷ Verizon at 1.

¹⁰⁸ Intel at 9.

requests include interactions between PAEs and original assignees and inventors.¹⁰⁹ Other commenters suggested that the requests explicitly ask whether PAEs submitted Hart-Scott-Rodino notifications for acquired portfolios.¹¹⁰

The Commission also received several comments that requested a broadening of the requests dealing with Standard Essential Patents (SEP). Several commenters suggested that these requests should encompass licensing commitments made outside of the setting of Standard Setting Organizations.¹¹¹ Kellogg Huber Hansen and Intel suggested requesting more detail regarding SEP licensing.¹¹²

Commenters also suggested expanding the requests regarding patent licensing demands. Several commenters suggested expanding the requests to ask for details on the process by which PAEs identify targets for their demands.¹¹³ Another commenter suggested that the requests be expanded to obtain more detail regarding the product that is the subject of the demand.¹¹⁴ Another commenter suggested that the requests explicitly ask for “the royalty base used to support any royalty demand.”¹¹⁵

Several parties suggested that the Commission seek to obtain more information regarding PAEs’ litigation strategies. This included asking for the number of documents produced by both parties in litigation, so as to identify asymmetries in the costs and other burdens of litigation on PAEs and the firms against which they assert their patents.¹¹⁶ One commenter suggested analyzing litigation data to observe whether PAEs select specific judicial venues for strategic reasons.¹¹⁷ One commenter suggested that the request include the inventor’s role or interest in litigation.¹¹⁸ Another suggested requesting the identity of all expert witnesses retained by the PAE.¹¹⁹ Finally, one commenter suggested that the requests regarding licensing be expanded, and proposed that respondents specify “not only the amounts but also the structure of payments

¹⁰⁹ Internet Association at 5.

¹¹⁰ AAI at 8; Davis Polk at 5. The Hart-Scott Rodino Antitrust Improvements Act of 1976 allows the Federal Trade Commission and the United States Department of Justice to review certain mergers, acquisitions, and consolidations that meet the Act’s thresholds. *See* 15 U.S.C. 18a.

¹¹¹ Contreras at 2; Kellogg Huber Hansen at 20; Internet Association at 5.

¹¹² Kellogg Huber Hansen at 14; Intel at 7.

¹¹³ NAAG at 3; Intel at 11-12; SPAN Coalition at 3; SAS Institute, *et. al* at 2; DMA at 2.

¹¹⁴ Kellogg Huber Hansen at 9.

¹¹⁵ Intel at 11.

¹¹⁶ Davis Polk at 5.

¹¹⁷ Intel at 15-16.

¹¹⁸ Kellogg Huber Hansen at 7; *see also* ADTRAN, Inc. Comment (ADTRAN) at 5.

¹¹⁹ Verizon at 2.

or other compensation,” as well as “all” recipients of payments or compensation flowing from licensing.¹²⁰

Response: The Commission considered all of these comments. The diverse set of commenters provided a wide variety of comments, each reflecting issues of unique importance to them. While many of the proposed additions would have utility, in many cases the additional information would focus on narrow issues that might not be justified by the additional burden to respond.

9. Payments and Gifts to Respondents

There is no provision for the payment of gifts to respondents.

10. Assurances of Confidentiality

In connection with its requests, the Commission will receive information of a confidential nature. Under Section 6(f) of the FTC Act, such information is protected from disclosure while it remains confidential commercial information. 15 U.S.C. § 46(f).

11. Matters of a Sensitive Nature

The collection of information does not include any questions of a sensitive nature involving matters that are commonly considered personal and private. The requests for confidential proprietary information are discussed above.

12. Estimated Hours and Labor Cost Burden

Several commenters noted that the Commission’s initial estimate of recipients’ burden was accurate. The National Association of Attorneys General noted that the Commission has estimated the burden “with a reasonable degree of accuracy.”¹²¹ The SAS Institute, joined by Limelight Networks, VIZO, Inc., and five other firms, agreed that the estimates “appear reasonable.”¹²² Similarly, Kellogg Huber Hansen, writing on behalf of Adobe Systems, Inc., Canon U.S.A., Inc., Cisco Systems, Inc., and seven other firms, noted that the Commission’s methodology for estimating the burden of complying with the information requests “is reasonable.”¹²³ The Retail Industry Leaders Association “agrees with the FTC’s calculation of the burden” and “find[s] the factors considered and estimated costs to be reasonable.”¹²⁴

¹²⁰ Kellogg Huber Hansen at 8.

¹²¹ NAAG at 2.

¹²² SAS Institute, *et. al*, at 1.

¹²³ Kellogg Huber Hansen at 20.

¹²⁴ RILA at 3.

In contrast, several commenters believed that the Commission's initial burden estimates were too low.¹²⁵ Intellectual Ventures claimed that the Commission's estimate was "substantially understated," but acknowledged that it "owns a large patent portfolio and understands that its compliance burden will be toward the upper end of the range of burden imposed on respondents."¹²⁶ The IPO noted that the burden estimate underestimated the efforts required to gather "all the different types of documents" responsive to document requests and prepare "legal analysis" required by the proposed requests.¹²⁷

Several operating companies claimed that they would face a high burden to respond to the proposed requests. Qualcomm estimated that reviewing documents responsive to the requests as originally proposed would require "250,000 hours at a cost of more than \$25 million."¹²⁸ Microsoft estimated that it would cost it "several million dollars" and take "tens of thousands of hours" to comply with the requests as originally drafted.¹²⁹

The Commission's initial hour burden estimates are consistent with previous PRA estimates and the Commission's experience with information requests that require financial data, answers to questions, and production of pre-existing documents. The GENERIC DRUG REPORT, as well as the AUTHORIZED GENERIC DRUGS report, involved requests for financial information and responses to questions, and the estimated hours burdens varied depending on the number of drugs covered. Similarly, the burden in this study will vary depending on a subject's number of patents and amount of assertion activity. In the generic drugs study, the burden was an estimated 100-500 hours, and in the authorized generics study, the burden was an estimated 138 to 456 hours.¹³⁰

Even assuming that the Commission's initial estimate understated the burden, the Commission believes that its estimates are realistic given the modifications to the requests, which adopted many of the public comments' suggestions for reducing burden. Most significantly, many requests that originally called for "all" documents in given category now request a small subset of such documents. This will greatly reduce the burden of responding to the requests. For example, the Commission revised its proposed request to: "for each license agreement ... submit a copy of the agreement and all documents Relating to the agreement" to the narrower request to "submit ... all License agreements ... also submit all studies, analyses, and reports ... that evaluate or analyze the reasons for entering into the agreement." The Commission anticipates that this will reduce the number of responsive documents to only a handful of documents for each agreement, which will greatly reduce the burden of responding. For example, Microsoft claims that it has 557 license agreements, and that it would have 60,323

¹²⁵ Intellectual Ventures at 21-23; Acacia at 3; Microsoft at 10-15; Qualcomm at 6; Nokia at 2; InterDigital at 5; Prof. Michael Risch Comment (Risch) at 1; GTW Associates Comment (GTW Associates) at 1.

¹²⁶ Intellectual Ventures at 21.

¹²⁷ IPO at 2.

¹²⁸ Qualcomm at 6.

¹²⁹ Microsoft at 15.

¹³⁰ 66 Fed. Reg. 12,512, 12,522-23 (2001); 72 Fed. Reg. 25,304, 25314 (2007).

documents responsive to the initial proposed request.¹³¹ As revised, the Commission anticipates that Microsoft would have less than 3,000 responsive documents, or around 5% of Microsoft's estimate.

The Commission has amended its requests to reduce the burden on manufacturing firms, which may have the highest burden because of their size. Several comments stated that requests would unduly burden companies with large portfolios of patents that were developed by the company's employees.¹³² The proposed requests have been modified to avoid unreasonable burdens on such companies. Similarly, the Commission limited its request for investor information for publicly traded firms, addressing the concern that this would call for the identification of shareholders.¹³³ Moreover, there are two different proposed information requests with different scopes: one to wireless chipset manufacturers and wireless chipset NPEs, and a more comprehensive request for PAEs.

The Commission has taken a number of additional steps to reduce the burden of response. To reduce the burden on responding parties, expedite responses, and facilitate the Commission's analysis of the information collected, it has prepared an electronic spreadsheet to be completed by respondents.¹³⁴ Further, as noted above, the Commission has revised its requests in many instances to minimize the legal or factual analysis required to respond.¹³⁵ In addition, in order to reduce the need to analyze or log documents for privilege, the Commission revised many requests originally calling for "all documents" to call for only "studies, analyses, and reports which were prepared by or for any officer(s) or director(s) of the company... or presented to any Person outside the Firm," which will reduce the number of responsive documents overall and those that may raise potential privilege issues.

A. Estimated Hours Burden:

The proposed information collection is a one-time endeavor that will not involve repeated responses. In its prior *Federal Register* notice, the Commission estimated that a recipient's burden for the PAE study would range from 90 to 400 hours depending on the recipient.¹³⁶

The burden to respond to information requests will vary with the size of the responding firm's patent holdings, as well as the extent of its patent assertion activity. The Commission anticipates that the cumulative hours burden to respond to the information requests will range between 275 and 845 hours per firm. Nonetheless, the Commission conservatively assumes that, except as noted above with respect to firms with few holdings and little assertion activity, the

¹³¹ Microsoft at 15.

¹³² Nokia at 3; InterDigital at 10.

¹³³ Nokia at 3.

¹³⁴ This approach has been suggested by several commenters. See SAS, *et al.*, at 2; Liu at 1; IPO at 2.

¹³⁵ InterDigital's view that the FTC's burden estimate was too low was based, in part, on its view that "determining which patents are or are not subject to licensing commitments and other encumbrances is not just a factual determination but a legal one that requires consultation with counsel." InterDigital at 6.

¹³⁶ 78 Fed. Reg. 61,352, 61,357 (Oct. 3, 2013)

average burden for each of the approximately 25 PAE firms will be 845 hours, and the cumulative estimated burden will be 21,125 hours. The Commission conservatively assumes that the average burden for each of the approximately 15 wireless chipset manufacturers and wireless chipset NPEs will be 565 hours per firm, and the cumulative estimated burden will be 8,475. Given these conservative estimates, the total estimated burden is 29,600 hours. These estimates attempt to include any time spent by other entities affiliated with the Firm that received the information requests, however, the numbers may be greater or lesser depending on the numbers of affiliated entities. The Commission seeks to understand the number of affiliated entities as part of the Information Requests.

Task	PAE Firms	Wireless Chipset Manufacturers and Wireless Chipset NPEs
Identify, obtain, and organize firm information; prepare response:	15-35 hours	15-35 hours
Identify, obtain, and organize patent information; prepare response:	40 – 65 hours	N/A
Identify, obtain, and organize patent portfolio information; prepare response:	40 – 65 hours	N/A
Identify, obtain, and organize acquisition information; prepare response:	70 – 150 hours	N/A
Identify, obtain, and organize transfer information; prepare response:	70 – 150 hours	70 – 150 hours
Identify, obtain, and organize assertion information; prepare response:	150 – 300 hours	150 – 300 hours
Identify, obtain, and organize aggregate revenue information; prepare response:	20 – 40 hours	20 – 40 hours
Identify, obtain, and organize aggregate cost information; prepare response:	20 – 40 hours	20 – 40 hours

TOTAL	425 – 845 hours	275 – 565 hours
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B. Estimated Cost Burden:

It is difficult to calculate precisely labor costs associated with this data production. Labor costs entail varying compensation levels of management and/or support staff among firms of different sizes. In addition, comments responding to the first Federal Register Notice suggested that some respondents expect to utilize outside legal counsel in responding to the requests, which may add additional costs. Consequently, although financial, legal, and clerical personnel may be involved in the information collection process, the Commission now assumes that mid-management personnel and outside legal counsel will handle most of the tasks involved in gathering and producing responsive information, and has applied an average rate of \$250/hour for all labor costs. Thus, except for firms with small patent portfolios and relatively little assertion activity, the labor costs per respondent may range between \$68,750 (275 hours x \$250/hour) and \$211,250 (845 hours x \$250/hour).

13. Estimated Annual Capital or Other Non-labor Costs

The Commission anticipates that the capital or other non-labor costs associated with the information requests will be minimal. Although the information requests may require the respondent to store copies of the requested information provided to the Commission, responding Firms should already have in place the means to store information of the volume requested. As the SAS Institute noted, “the requested information overlaps significantly with what a PAE would have to prepare in connection with asserting and litigating a patent.”¹³⁷ Further, the Internet Association observed that “because patents are PAEs’ primary assets, PAEs, whatever the size of their portfolios, likely have well-organized files relating to individual patents and patent portfolios.”¹³⁸

Respondents may need to purchase minimal office supplies to respond to the request. The Commission estimates that each respondent will spend \$500 for such costs regarding the information request, for a total additional non-labor cost burden of \$20,000 (\$500 x 40 respondents).

14. Estimate of Cost to the Federal Government

The cost of the information collection to the federal government will include the cost of staff time used to design the information requests, analyze the data collected, and produce a report in an expeditious manner. It is difficult to quantify the total cost to the Commission to complete the study because multiple factors may vary, including how quickly and completely subjects respond to information collection requests and the actual amount of time needed to complete the study. Nonetheless, the Commission estimates that approximately 3 attorney work years (\$174,000 per work year, including benefits), 6000 economist hours (\$500,000 including

¹³⁷ SAS Institute, *et. al.* at 1.

¹³⁸ Internet Association at 3.

benefits), and 320 research assistant hours (\$11,000 including benefits) will be needed to complete the study. Thus, the total remaining cost to the Commission is about \$1,033,000. Clerical and other support services and costs of conducting the study are included in this estimate.

15. Program Changes or Adjustments

Not applicable. This is a new collection of information.

16. Plans for Tabulation and Publication of Information

Subject to OMB clearance, the Commission will collect information from respondents and prepare a public report based on the results. The estimated date for the completion of the report is 2015.

17. Failure to Display the OMB Expiration Date

Not applicable.

18. Exceptions to Certification

Not applicable.

APPENDIX F: SUPPORTING STATEMENT FOR A PAPERWORK REDUCTION ACT SUBMISSION TO OMB, FTC STUDY OF PATENT ASSERTION ENTITIES, PART B

PART B – COLLECTION OF INFORMATION METHODOLOGY

1. Description of Sampling Methods

The FTC believes that it is in the public interest to conduct a descriptive case study of Patent Assertion Entity (PAE) activity. The FTC’s study will consist of two parts. The primary focus of the study consists of a descriptive case study of the PAE business model. The second part is a narrowly focused comparative case study of patent assertion activity in the wireless chipset sector. This is a one-time collection that will not create a repetitive burden for respondents.

Response by recipients of the information requests, pursuant to FTC Act Section 6(b), 15 U.S.C. § 46(b), is mandatory. Previous FTC collections under Section 6(b) orders have had 100% response rates. The recipient of a 6(b) order may file a petition to limit or quash, and the FTC may seek a federal court order requiring compliance. In addition, the FTC may commence suit in Federal court under Section 10 of the FTC Act, 15 U.S.C. § 50, against any party that fails to comply with a 6(b) order after receiving a notice of default from the FTC.

A. Selection of Subjects for the Broad PAE Case Study

For the first part of the study, the FTC proposes sending information requests to approximately 25 PAEs that use different organizational models and assertion strategies. The FTC recognizes that no publicly available data set identifies the full population of PAEs, consequently the FTC’s ability to generalize study findings to the population as a whole is restricted. Hence, this study will not extrapolate its findings to the population of all PAEs. Instead, the FTC will publish a detailed case study of the PAE industry where the study subjects have been selected to disproportionately include firms with more patents and litigation activity while still including small and medium sized firms.

An ideally constructed sample of PAEs for the study would select PAEs that were representative of the population of PAEs operating in the U.S. Such a sample would oversample firms that were more economically important (accounting for a larger proportion of economic activity) while simultaneously including firms pursuing different assertion strategies (such as acquiring large or small portfolios of patents for later assertion). The FTC then could generalize results obtained from such an ideally constructed sample to the population of PAEs. Unfortunately, no publicly available data set identifies the full population of PAEs. Moreover, no data set describes the type of assertion strategy used by particular PAEs (*e.g.*, primarily litigating or primarily licensing). Given the uncertainty about the PAE universe, it is infeasible to conduct a study whose results can be generalizable to the population.

Making the best use of available data, the FTC has designed a subject-selection procedure that will simultaneously be more likely to include more economically important firms (that account for a larger proportion of PAE behavior) while including firms of different sizes (to ensure that firms operating a variety of business models are included). To meet these goals, the FTC proposes to use a stratified sampling method. First, the FTC will group firms into categories corresponding to firm size. Second, the FTC will randomly sample a fixed number of firms within each group, where the probability of being selected will be based on the relative size of the firm within the group. Because there is no public data source that systematically estimates the

revenues of all PAEs operating in the U.S., the study cannot use a firm's revenue as a measure of firm size. Instead, the study will use two publicly observable measures of a PAE's size to construct a proxy measure for firm size: the estimated patent holdings of PAEs and estimated number of defendants sued by the PAE.¹ The proposed stratified sampling algorithm used to construct the PAE respondent sample is explained below.

The FTC purchased the measures of estimated patent holdings and the estimated number of defendants sued from two commercial data collection firms: Patent Freedom and RPX.² Patent Freedom and RPX use public sources of information to determine if a firm is a PAE. Patent Freedom and RPX also provide estimates of the patent holdings and litigation behavior of firms engaged in patent litigation. It is important to note that both firms only provide estimates of the universe of PAEs. With publicly available data it is not currently possible to determine how much of the PAE universe is covered by Patent Freedom and RPX. The FTC does not have the resources to conduct a census of the PAE industry from which to determine a sample, and is relying on the estimated universe compiled by these firms. Hence, the results of this study will not be extrapolated to the population of all PAEs. Instead, the study's results should be interpreted as a detailed case study of the PAE industry where the study subjects have been selected to disproportionately include firms with more patents and litigation activity, while still including small and medium-sized firms.

The FTC will sample PAE subjects based on measures of patent holdings and litigation activity provided by Patent Freedom and RPX. As one goal of the case study is to cover a large part of total observable activity while also sampling smaller firms, the sampling design will use two variations on pure random sampling, stratified and weighted sampling, to construct a list of study subjects. The selection algorithm will combine measures of both litigation and patent holding data to determine the mutually exclusive stratum and the weight assigned to each PAE.

Stratified sampling will allow the FTC to divide the PAEs included in the publicly available data into mutually exclusive strata based on observable characteristics that proxy for firm size. Stratified sampling will also ensure that some of the entities from each strata, or group, are selected. The sampling design will define three strata based on the combined measure of activity – one for the most active firms, one for firms with a moderate level of activity, and one for the firms with relatively little observable activity. The FTC will use weighted random sampling within each stratum to choose the number of entities allocated to that stratum.

Within each PAE stratum, the probability of inclusion will be proportional to the measure of PAE activity: the larger a firm's proxy score, the higher the probability that the firm will be selected for the study. This is still a random selection process. However, it will increase the likelihood – although it will not guarantee – the inclusion of the larger firms within a PAE

¹ The FTC developed this methodology after conducting its own research and meeting with academics, businesses, trade associations, and other government representatives.

² There also is no publicly available data set detailing all patents held by PAEs and all defendants sued by PAEs. Consequently, the FTC conducted its own research and met with academics, businesses, trade associations, and representatives of other government agencies to identify commercial data sources. While a number of academics have begun to create litigation data sets, Patent Freedom and RPX were the only commercial data providers who attempt to identify all PAE patent litigation and measure PAE patent holdings.

stratum. The FTC will sum the two size proxy measures into a single composite score.³ Overall, relative to using weighted sampling on a sample that includes firms of all sizes, stratifying the PAE sample will increase the probability (substantially in some cases) of including firms with lower composite scores (to cover a range of PAE types) and decrease the probability of including firms with higher scores.

The FTC will construct the litigation activity score as follows: across the previous 4 years of data (2010-2013), the PAE filing patent infringement suits against the largest number of defendants will receive a score of 1.0. All other PAEs will receive a score that is the ratio of their total number of defendants to the number of total defendants sued by the most active PAE. The patent holding index will be constructed in a similar way. The PAE with the largest number of patents held at the end of 2013 will receive a score of 1.0. All other PAEs will receive a score that is the ratio of their observed number of patents held to that of the largest PAE. The FTC will then sum the two component scores to form the overall weighting statistic that will determine both the stratum that the PAE is assigned to and, ultimately, the probability of being included in the PAE study.⁴ The FTC will define strata by non-overlapping ranges of the combined activity score, where the ranges are determined after the scores for all of the PAEs in the sample are determined.

Because the FTC is relying on third party estimates of PAEs for the initial selections, the FTC will select slightly more PAEs than are ultimately included in each stratum to create a candidate sample. After the initial selection is complete, the FTC will sort the selected candidate sample PAEs within each stratum according to their activity score. The FTC then will research whether the selected firms meet the FTC's definition of a PAE (*i.e.* firms with a business model based primarily on purchasing patents and attempting to generate revenue by asserting the intellectual property against persons who are already practicing the patented technology). Once the number of verified firms matches the number of firms allocated to each stratum, the FTC will drop the remaining candidate firms from the sample.

B. Selection of Subjects for the Comparative Wireless Chipset Case Study

The second part of the study will compare how PAEs, manufacturing firms and other firms assert intellectual property in the wireless chipset sector. For example, the FTC seeks to explore whether the potential for countersuit against manufacturing firms changes their respective assertion behavior relative to PAE firms. While some commenters suggested expanding the scope of the comparative case study, the FTC proposes limiting that case study to the wireless chipset sector because that sector is relatively well-defined with a significant amount of assertion activity by PAEs, manufacturing firms, and other firms. This limitation also permits the FTC to achieve its goal of performing a comparative analysis of assertion behavior without

³ The assumption is that PAEs with large patent holdings but few litigations have significant patent monetization but do not rely on filing litigation as a primary business strategy. Similarly, firms with relatively few patents but many litigations are assumed to have significant patent monetization activity.

⁴ To give a simple, concrete example of the mechanics of the design, consider a stratum of PAEs A, B, and C, in which only one firm from the group will be selected. Suppose that A, B, and C file suits against 10, 2, and 3 defendants respectively: A receives a litigation score of 1.0, B receives 0.2, and C receives 0.3. During the same period, A holds 75 patents, B holds 50 patents, and C holds 150 patents. Their respective patent holding scores are 0.5, 0.33, and 1.0. The resulting probabilities of inclusion for A, B, and C are 0.45, 0.16, and 0.39.

imposing an undue burden on study subjects. The FTC proposes sending information requests to approximately nine manufacturing firms and approximately six other firms asserting patents in this sector.

For manufacturing firms, the sample will include nine manufacturers of wireless chipsets who collectively represent the majority of industry sales of wireless chipsets. Any representations in a subsequent report will make clear that the analysis relates specifically to the subjects chosen and will not extrapolate to assertion behavior in other industries.

The FTC recognizes that no publicly available data set identifies the full population of non-practicing entities (NPEs) or those NPEs asserting patents in the wireless chipset sector. Consequently, the FTC's ability to generalize study findings to the population as a whole is restricted. Hence, this study will not extrapolate its findings to the population of all NPEs or to the population of all NPEs asserting patents in the wireless chipset sector. Instead, the FTC will publish a comparative case study of the wireless chipset sector where the NPE study subjects have been selected to disproportionately include firms with more patents and litigation activity while still including small and medium sized firms.

For NPEs, an ideally constructed sample of NPEs for the comparative wireless chipset study would select NPEs that were representative of the population of NPEs asserting patents in the wireless chipset sector in the U.S. The FTC then could generalize results obtained from such an ideally constructed sample to the population of NPEs asserting patents in that sector. Unfortunately, no publicly available data set identifies the full population of NPEs or of NPEs asserting patents in the wireless chipset sector. Given the uncertainty about the NPE universe, it is infeasible to conduct a study whose results can be generalizable to the population.

Instead, as in the case of the PAE sample, the FTC has designed a subject-selection procedure for NPEs that will simultaneously be more likely to include the most economically important firms (that account for a larger proportion of NPE assertions in the wireless chipset sector) while including firms of different sizes (to ensure that firms operating a variety of business models are included). To meet these goals, the FTC proposes to use a stratified sampling method similar to the method used in the PAE sample. First, the FTC will group firms into categories corresponding to firm size. Second, the FTC will randomly sample a fixed number of firms within each group, where the probability of selection will be based on the relative size of the firm within the group. Because there is no public data source that systematically estimates the revenues of all NPEs operating in the U.S., or more particularly of those asserting patents in the wireless chipset sector, one cannot use a firm's revenue as a measure of firm size. Instead, the FTC will use two publicly observable measures of NPE size to construct a proxy measure for firm size: the estimated patent holdings of the NPE and the estimated number of defendants sued by the NPE. The proposed stratified sampling algorithm used to construct the NPE respondent sample is explained below.

The FTC purchased the measures of estimated patent holdings and the estimated number of defendants sued from two commercial data collection firms: Patent Freedom and RPX.⁵ Patent

⁵ There also is no publicly available data set detailing all patents held by PAEs and all defendants sued by PAEs. Consequently, the FTC conducted its own research and met with academics, businesses, trade associations, and representatives of other government agencies to identify commercial data sources. While a number of academics

Freedom and RPX use public sources of information to determine if a firm is an NPE. Patent Freedom and RPX also provide estimates of the patent holdings and litigation behavior of firms engaged in patent litigation. It is important to note that both firms only provide estimates of the universe of NPEs. With publicly available data it is not currently possible to determine how much of the NPE universe, or the universe of NPEs asserting patents in the wireless chipset sector, is covered by Patent Freedom and RPX. The FTC does not have the resources to conduct a census of the NPE industry from which to determine a sample, and is relying on the estimated universe compiled by these firms. Hence, the results of this study will not be extrapolated to the population of all NPEs or to all NPEs asserting patents in the wireless chipset sector. Instead, the study results should be interpreted as a detailed case study of NPEs and manufacturers in the wireless chipset sector where the NPE subjects have been selected to disproportionately include firms with more patents and litigation activity while still including small and medium sized NPEs.

The NPE subjects will be sampled based on measures of patent holdings and litigation activity provided by Patent Freedom and RPX. As in the PAE sample, the sampling design will use two variations on pure random sampling, stratified and weighted sampling, to construct a list of study subjects. The selection algorithm will combine measures of both litigation and patent holding data to determine the mutually exclusive stratum and the weight assigned to each NPE.

Stratified sampling will allow the FTC to divide the NPEs included in the publicly available data into mutually exclusive strata based on observable characteristics that proxy for firm size. Stratified sampling will also ensure that some of the entities from each strata, or group, are selected. The sampling design will define three strata based on the combined measure of activity – one for the most active firms, one for firms with a moderate level of activity, and one for the firms with relatively little observable activity. The FTC will use weighted random sampling within each stratum to choose the number of entities allocated to that stratum.

Within each NPE stratum, the probability of inclusion will be proportional to the measure of NPE activity: the larger a firm's proxy score, the higher the probability that it is selected for the study. This is still a random selection process. However, it will increase the likelihood – although it will not guarantee – the inclusion of the larger firms within a NPE stratum. The FTC will then sum the two size proxy measures into a single composite score to capture large NPEs across different business strategies. The composite score will be relative to other firms in the NPE sample only. Overall, relative to using weighted sampling on a sample that includes firms of all sizes, stratifying the NPE sample will increase the probability (substantially in some cases) of including firms with lower composite scores (to cover a range of NPE types) and will decrease the probability of including firms with higher scores.

The FTC will construct the litigation activity score will be constructed as follows: across the previous 4 years of data (2010-2013), the NPE filing patent infringement suits against the largest number of defendants will receive a score of 1.0. All other NPEs will receive a score that is the ratio of their total number of defendants to the number of total defendants sued by the most active NPE. The patent holding index will be constructed in a similar way. The NPE with the

have begun to create litigation data sets, Patent Freedom and RPX were the only commercial data providers who attempt to identify all NPE patent litigation and measure NPE patent holdings.

largest number of patents held at the end of 2013 will receive a score of 1.0. All other NPEs will receive a score that is the ratio of their observed number of patents held to that of the largest NPE. The FTC will then sum the two component scores will be summed to form the overall weighting statistic that will determine both the stratum to which the NPE is assigned and, ultimately, the probability of the NPE being included in the comparative wireless chipset study. The FTC will define strata by non-overlapping ranges of the combined activity score, where the ranges are determined after the scores for all of the NPEs in the sample are determined.

Because the FTC is relying on third party estimates of NPEs for the initial selections, the FTC will select more NPEs than are ultimately included in each stratum to create a candidate sample. After the initial selection is complete, the FTC will sort the selected candidate sample NPEs within each stratum according to their activity score. FTC staff will then research whether the selected firms meet the FTC's definition of an NPE (*i.e.* firms with a business model based primarily on developing and transferring their patented technologies) and whether the firm is asserting patents in the wireless chipset sector. Once the number of verified firms matches the number of firms allocated to each stratum, the FTC will drop the remaining candidate firms from the sample.

2. Description of Information Collection Procedures

This is a one-time collection that will not create a repetitive burden for respondents.

For the first case study, the FTC proposes sending information requests to approximately 25 PAEs that use different organizational models and assertion strategies. (The sampling methodology is described in Part 1 of this document.) For instance, the proposed requests seek information on the composition of PAE portfolios (information such as the age and field of patents); whether any patents are essential to any standards or encumbered by other licensing obligations; the costs of acquiring patents, as well as whether the PAEs share an economic interest in their portfolios with other entities. The requests also seek information about assertion activity, such as licensing and litigation activity, and the costs from assertion.

The second case study compares how PAEs, manufacturing firms and other firms assert intellectual property in the wireless chipset sector. For example, the FTC seeks to explore whether the potential for countersuit against manufacturing firms changes their respective assertion behavior relative to PAE firms. While some commenters suggested expanding the scope of the comparative case study, the FTC proposes limiting that case study to the wireless chipset sector because that sector is relatively well-defined with a significant amount of assertion activity by PAEs, manufacturing firms, and other firms. This limitation also permits the FTC to achieve its goal of performing a comparative analysis of assertion behavior without imposing an undue burden on respondents. For the second case study, the FTC proposes sending information requests to approximately 9 manufacturing firms and approximately 6 NPEs who assert patents in the wireless chipset sector.

The information requests sent to manufacturing firms and NPEs who assert patents in the wireless chipset sector will have fewer questions than the information requests sent to PAE respondents. It will not include subparts relating to patent holdings, patent portfolios, and patent acquisition. It also will only request information for the subset of respondents' assertion activity related to the wireless chipset sector.

The FTC will send one set of information requests to each respondent. The requests will call for both the production of non-privileged documents as well as the provision of information in both narrative and spreadsheet form. Wherever practical, the FTC will ask for short responses that can be provided as spreadsheet entries, such as dates, dollar amounts, and “yes” or “no” responses. The FTC also will provide a spreadsheet template that will include sample responses and formatting instructions.

Because the FTC will carefully direct information requests toward significant aspects of the respondents’ business activities, the FTC expects that respondents will have much of the requested data available in an organized electronic form. Consequently, the FTC expects that the spreadsheet will reduce the respondent’s burden. In addition, the use of a spreadsheet will reduce the FTC’s burden in analyzing responses.

A. Information Collection

The information to be collected in each subpart is discussed below:

1. Firm Information

The proposed information request for both case studies will include one subpart related to the respondents’ corporate form and organization, including identification of parents, subsidiaries, and related firms. As noted in Part A, information related to how PAEs are organized is relevant to both patent reform legislation and other policy responses to PAE activity. This subpart comprises several questions calling for a narrative response. Because the FTC expects that respondents will have this data available in electronic form, it encourages electronic submission to reduce the respondent’s burden.

2. Patent Information

The proposed information requests for the PAE case study will include one subpart asking for information related to each patent held by the respondent since January 1, 2009. As noted in Part A, information regarding PAE patent holdings is relevant to a number of policy issues.

To reduce the burden to respondents, the FTC has coordinated with the United States Patent and Trademark Office (USPTO). In this section, the FTC will request that respondents provide a spreadsheet listing the patent number for each relevant patent so the FTC can cross-reference this data with data obtained from the USPTO. By doing this, the FTC will reduce the burden to respondents because it will reduce production of publicly available data.

The proposed information request also will ask for non-public information regarding the patent, including whether third parties hold any interests in the patent and whether any party has performed a valuation of the patent. In addition, the proposed request will ask respondents to provide information regarding the history of each patent, such as whether the patent has ever been licensed or asserted in litigation.

To reduce the respondent’s burden, wherever practical, the FTC will seek a “yes” or “no” response, or a simple categorical or numerical response. To further reduce the respondent’s burden, the FTC will provide respondents with a template spreadsheet to answer “yes,” “no,” categorical and numerical requests. Some requests, however, will require narrative responses. Other requests will require respondents to produce specific documents, for example existing

agreements and non-privileged reports related to requested patents. Because the FTC expects that respondents will have this data available in electronic form, it encourages electronic submission to reduce the respondent's burden.

3. Standard Setting Commitments

The proposed information request for both the PAE case study and the wireless case study will include one subpart related to commitments made to Standard Setting Organizations (SSO). In the PAE case study, the FTC also will ask respondents to identify any patent held by the PAE since January 1, 2009 subject to an SSO licensing commitment. In the wireless chipset case study, the FTC will ask respondents to identify any patent asserted in the wireless sector held by the firm since January 1, 2009 that is subject to a SSO licensing commitment.

To address public comments raising concerns regarding burden, the FTC will ask respondents to identify such commitments only when they are known to the firm. The FTC will not ask firms to perform legal analysis to identify encumbered patents. The FTC intends to cross-reference this information with assertion information to observe how firms assert standard essential patents.

To reduce the respondent's burden, wherever practical, the FTC will seek a "yes" or "no" response, or a simple categorical or numerical response. To further reduce the respondent's burden, the FTC will provide respondents with a template spreadsheet to answer "yes," "no," categorical and numerical requests. Some requests, however, will require narrative responses. Other requests will require respondents to produce specific documents, for example, agreements related to the SSO commitment. Because the FTC expects that respondents will have this data available in electronic form, it encourages electronic submission to reduce the respondent's burden.

4. Patent Portfolio Information

The proposed information requests for the PAE case study will include one subpart asking for information related to the manner in which PAEs organize their patent holdings into portfolios. For example, the FTC will ask about the corresponding technological areas for patent portfolios, the identity of patents held patent portfolios and information regarding portfolio valuation. As noted in Part A, information regarding PAE patent organization is relevant to a number of policy issues.

To reduce the respondent's burden, wherever practical, the FTC will seek a "yes" or "no" response, or a simple categorical or numerical response. To further reduce the respondent's burden, the FTC will provide respondents with a template spreadsheet to answer "yes," "no," categorical and numerical requests. Some requests, however, will require narrative responses. Other requests will require respondents to produce specific documents. Because the FTC expects that respondents will have this data available in electronic form, it encourages electronic submission to reduce the respondent's burden.

5. Patent Acquisitions

The proposed information requests for the PAE case study will include one subpart asking for details regarding each transaction in which the PAE acquired a patent since January 1, 2009. The FTC will ask respondents to complete three spreadsheets. The primary spreadsheet

will have one entry for each acquisition transaction. The FTC will ask respondents to provide information regarding the transaction, including the date, transferor, and details regarding the nature of the acquisition. The second spreadsheet will have one entry for each patent acquired in each transaction. The FTC will ask respondents to list the patent number for each acquired patent, which will allow the FTC to cross-reference assertion information with acquisition information on a per-patent basis. The third spreadsheet has one entry for each third party receiving compensation as a result of the acquisition transaction. The FTC will ask respondents to provide detail regarding the amount and type of payments made to third parties to acquire patents, which will provide the FTC with quantitative information regarding the financial benefits to third parties—including inventors—of PAE activity.

To reduce the respondent's burden, wherever practical, the FTC will seek a "yes" or "no" response, or a simple categorical or numerical response. To further reduce the respondent's burden, the FTC will provide respondents with a template spreadsheet to answer "yes," "no," categorical and numerical requests. Some requests, however, will require narrative responses. Other requests will require respondents to produce specific documents. Because the FTC expects that respondents will have this data available in electronic form, it encourages electronic submission to reduce the respondent's burden.

6. Patent Transfers

The proposed information requests for both studies include will one subpart asking for details regarding each transaction in which the respondent transferred a patent to third parties since January 1, 2009.

The FTC will ask respondents to complete three spreadsheets. The primary spreadsheet has one entry for each transfer transaction. The FTC will ask respondents to provide information regarding the transaction, including the date, transferee, and details regarding the nature of the transaction. The second spreadsheet has one entry for each patent transferred in each transaction. The FTC will ask respondents to list the patent number for each transfer patent, which will allow the FTC to cross-reference transfer information with acquisition information on a per-patent basis. The third spreadsheet has one entry for each third party that compensated the respondent as a result of the transaction, including the amount paid. The FTC will ask respondents to provide detail regarding the amount and type of payments received from third parties to acquire patents.

To reduce the respondent's burden, wherever practical, the FTC will seek a "yes" or "no" response, or a simple categorical or numerical response. To further reduce the respondent's burden, the FTC will provide respondents with a template spreadsheet to answer "yes," "no," categorical and numerical requests. Some requests, however, will require narrative responses. Other requests will require respondents to produce specific documents. Because the FTC expects that respondents will have this data available in electronic form, it encourages electronic submission to reduce the respondent's burden.

7. Assertion Information

The proposed information requests for both case studies will include one subpart asking for details regarding each instance in which the respondent asserted patents since January 1, 2009. Both case studies will study three types of assertion activity: the sending of demands,

patent litigation, and patent licensing. This subpart will have one section related to each type of assertion activity.

The first section will ask questions about demands sent by the respondent. Demands include correspondence inviting a third party to take a patent license. As noted in Part A, PAE conduct regarding demands is the topic of proposed reform legislation. The FTC will ask respondents to provide a spreadsheet listing each demand and providing information such as the recipients and the patents and products at issue. The FTC will provide a template spreadsheet to guide respondents. In addition, the FTC will request that respondents produce correspondence and reports related to the demand.

The second section will ask questions about litigation involving patents held by the respondent. The FTC will ask respondents to provide a spreadsheet listing each lawsuit and providing information such as the patents and products at issue. In addition, the FTC will request information regarding the disposition of the lawsuit and will request the production of relevant court orders, expert reports, and settlement agreements. The FTC will provide a template spreadsheet to guide respondents.

The third section will ask questions about licenses that the respondent executed since January 1, 2009. The FTC will ask respondents to provide a spreadsheet listing each license, and providing information regarding the licensee, licensed patents, and terms of the license agreement. The proposed information requests will also enquire into payments received pursuant to the licenses, and call for the production of reports and agreements related to the license. The FTC will provide a template spreadsheet to guide respondents.

Each section will ask respondents to identify the patents relevant to each assertion, which will allow the FTC to cross-reference this information with patent holding and acquisition information. In particular, this information will allow the FTC to compare the revenues derived by the respondent from a particular patent to the payments made to acquire the patent, including payments made to the inventor.

To reduce the respondent's burden, wherever practical, the FTC will seek a "yes" or "no" response, or a simple categorical or numerical response. To further reduce the respondent's burden, the FTC will provide respondents with a template spreadsheet to answer "yes," "no," categorical and numerical requests. Some requests, however, will require narrative responses. Other requests will require respondents to produce specific documents. Because the FTC expects that respondents will have this data available in electronic form, it encourages electronic submission to reduce the respondent's burden.

8. Aggregate Cost Information

The proposed information requests for the PAE case study and the wireless case study will include one subpart asking for information regarding the respondent's costs for each year since 2009. To understand the overall costs of operating a PAE, the FTC will ask respondents to provide aggregate cost information for patent acquisitions, patent litigation, and patent licensing for each year from 2009 to the date of the request. The FTC will also request estimates of future costs associated with ongoing acquisitions, litigations, and licensing. In addition, if PAEs are engaged in R&D activity related to patents they hold, the FTC will request the aggregate cost of R&D activity. While some of the information requested in the Aggregate Cost section of the information request may have been reported in earlier sections of the information request, there

are two reasons why it is important that this information be reported in the aggregate cost section. First, this section will report data over time. This will allow the FTC to observe how the costs of PAEs in the broad case study and Other Entities in the wireless chipset case study have changed over time. Second, to the extent that some of the costs associated with patent assertion are fixed (not directly affected by the number of firms involved in litigation, licensing, or Demands), it may not be possible for Firms to attribute costs to each litigation, Demand, or license. These general fixed costs can be reported in the aggregate cost section of the information request.

To reduce the respondent's burden, wherever practical, the FTC will seek a "yes" or "no" response, or a simple categorical or numerical response. To further reduce the respondent's burden, the FTC will provide respondents with a template spreadsheet to answer "yes," "no," categorical and numerical requests. Some requests, however, will require narrative responses. Other requests will require respondents to produce documents sufficient to show these costs, which is less burdensome than requiring production of all documents that discuss costs. Because the FTC expects that respondents will have this data available in electronic form, it encourages electronic submission to reduce the respondent's burden.

9. Aggregate Revenue Data

The proposed information requests for the PAE case study and the wireless case study will include one subpart asking for information regarding the respondent's revenues for each year since 2009. In order to better understand the sources of revenue PAEs receive, the FTC will ask that respondents provide aggregate revenue information corresponding to patent transfers, patent litigation, and patent licensing for each year from 2009 to the date of the request. In addition, estimates of future revenues associated with ongoing transfers, litigations, and licensing are requested. This section will report data over time, which will allow staff to observe how the revenues of PAEs in the broad case study and Other Entities in the wireless chipset case study have changed over time. While the information requested in the Aggregate Revenue section of the information request may have been reported in earlier sections of the information request, in most cases only revenues aggregated over time are requested in those sections to lessen burden on respondents.

The FTC will ask respondents to provide information regarding both their revenues and how those proceeds are shared with third parties. The FTC will ask for this information on an annual basis, broken down into revenues from the transfer and assertion activities identified in response to the other requests.

To reduce the respondent's burden, wherever practical, the FTC will seek a "yes" or "no" response, or a simple categorical or numerical response. To further reduce the respondent's burden, the FTC will provide respondents with a template spreadsheet to answer "yes," "no," categorical and numerical requests. Some requests, however, will require narrative responses. Other requests will require respondents to produce documents sufficient to show these revenues, which is a less burdensome request than requiring production of all documents that discuss revenues. Because the FTC expects that respondents will have this data available in electronic form, it encourages electronic submission to reduce the respondent's burden.

B. Statistical Limitations of Empirical Analysis

The goal of the proposed study is to develop and publicly disseminate qualitative and quantitative information describing patent assertion activities to inform policymakers and the public on the nature of patent assertion business models. The proposed study consists of two related case studies, a PAE case study and a wireless case study. While the PAE case study includes PAEs that selected by a stratified random sampling method from an estimated population of PAEs, the FTC will not project its findings to the population of PAEs as a whole. As described above, it is not possible to determine how well the estimated population of PAEs being sampled corresponds to the true universe of PAEs. As a result, the study should be viewed as descriptive and limited to the observed sample.

The wireless case study compares the assertion behavior of NPEs and manufacturers in the wireless chipset sector. The FTC has chosen to study the wireless chipset sector because it is a sector with substantial patent assertion, litigation, and licensing by PAEs, NPEs, and manufacturers. As noted above, this is a case study, and as such, it is not statistically valid to extrapolate the findings from the case study to the population of PAEs, manufacturers, or NPEs. Instead, the findings of the case study should be viewed as descriptive and probative for future studies seeking to explore the relationships between organizational form and assertion behavior.

3. Methods to Maximize Response Rates/Reliability of Sample Data

As noted above, response by recipients of the proposed information request is mandatory. Additionally any destruction, removal, mutilation, alteration or falsification of documentary evidence that may be responsive to this information collection within the possession, custody or control of a person, partnership, or corporation subject to the FTC Act may be subject to criminal prosecution. 15 U.S.C. § 50; see also 18 U.S.C. § 1505. Consequently, the FTC expects 100% compliance with the requests.

4. Testing Procedures and Methods Undertaken

The FTC has not conducted any tests of procedures or methods to be used in the collection of the information from recipients. As discussed in Section (2) above, FTC staff have developed detailed spreadsheets to facilitate data collection both to lower respondents' burden and to facilitate staff analysis of the information submitted.

5. Individuals Consulted on Statistical Aspects of the Surveys

The questions for the survey have been developed and reviewed internally by various FTC staff, including staff attorneys and economists within the Office of Policy Planning, the Bureau of Competition, and the Bureau of Economics. The attorney contact is Suzanne Munck, Chief Counsel for Intellectual Property and Deputy Director, Office of Policy Planning, (202-326-2429).



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